ICOM®

# SERVICE MANUAL

VHF TRANSCEIVER

## IC-F70DT/DS
## IC-F70T/S

Icom Inc.

## INTRODUCTION

This service manual describes the latest service information for the **IC-F70DT/DS** and **IC-F70T/S** VHF TRANSCEIVER at the time of publication.

| MODEL | 10-KEYPAD | APCO25 |
|---|---|---|
| IC-F70DS | No | Compatible |
| | | Not compatible |
| IC-F70S | | FM only |
| IC-F70DT | Yes | Compatible |
| | | Not compatible |
| IC-F70T | | FM only |

To upgrade quality, any electrical or mechanical parts and internal circuits are subject to change without notice or obligation.

## DANGER

**NEVER** connect the transceiver to an AC outlet or to a DC power supply that uses more than 7.2 V. This will ruin the transceiver.

**DO NOT** reverse the polarities of the power supply when connecting the transceiver.

**DO NOT** apply an RF signal of more than 20 dBm (100 mW) to the antenna connector. This could damage the transceiver's front end.

## ORDERING PARTS

Be sure to include the following four points when ordering replacement parts:

1. 10-digit order numbers
2. Component part number and name
3. Equipment model name and unit name
4. Quantity required

**<SAMPLE ORDER>**

| | | | | | |
|---|---|---|---|---|---|
| 1130010100 | S.IC | LMX2352TM | IC-F70DS | MAIN UNIT | 5 pieces |
| 8810010120 | Screw | PH B0 M2×8 SUS ZK | IC-F70DS | CHASSIS | 10 pieces |

Addresses are provided on the inside back cover for your convenience.

IC-F70DT/T

## REPAIR NOTES

1. Make sure a problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits or electronic parts. An insulated tuning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a signal generator or a sweep generator.
7. **ALWAYS** connect a 50 dB to 60 dB attenuator between the transceiver and a deviation meter or spectrum analyzer when using such test equipment.
8. **READ** the instructions of test equipment thoroughly before connecting equipment to the transceiver.

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# SECTION 1 SPECIFICATIONS

## ■ GENERAL

- Frequency coverage : 136–174 MHz
- Type of emission : 11K0F3E (Narrow)
  16K0F3E (Wide)
- Number of conventional channels : 256 channels (Max.)
- Antenna impedance : 50 Ω (Nominal)
- Operating temperature range : –22°F to 140°F
- Power supply requirement : Specified Icom's battery pack only
  (Operatable voltage; 7.2 V DC negative ground)
- Current drain (At 7.2 V DC ; approx.) :

| RECEIVING | | TRANSMITTING | |
|---|---|---|---|
| Stand-by | Max.audio | High (5 W) | Low (1 W) |
| 150 mA | 450 mA | 2.2 A | 1.5 A |

- Dimensions (Projections not included) : 2 5/16 (W)× 5 31/32 (H)× 1 1/2 (D) in
- Weight (Except anntena, battery pack) : 8 13/16 oz (Approx.)

## ■ TRANSMITTER

- Output power (At 7.2 V DC) : High; 5 W, Low; 1 W
- Modulation : Variable reactance frequency modulation
- Maximum permissible deviation : ±2.5 kHz (Narrow)
  ±5.0 kHz (Wide)
- Frequency error : ±2.00 ppm
- Spurious emissions : 70 dB typ.
- Adjacent channel power : 60 dB min. (Narrow)
  70 dB min. (Wide)
- Audio harmonic distortion : 3% typ. at 40% deviation
- Limiting charactor of modulator : 60–100% of max. deviation
- FM hum and noise (Without CCITT filter) : 34 dB min. (40 dB typ. ; Narrow)
  40 dB min. (45 dB typ. ; Wide)
- Audio frequency response : +2 dB to –8 dB of 6 dB/octave from 300 Hz to 2550 Hz (Narrow)
  +2 dB to –8 dB of 6 dB/octave from 300 Hz to 3000 Hz (Wide)
- Microphone impedance : 2.2 kΩ

## ■ RECEIVER

- Receive system : Double conversion superheterodyne system
- Intermediate frequencies : 1st IF; 46.35 MHz, 2nd IF; 450 kHz
- Sensitivity : 0.25 μV typ. at 12 dB SINAD
- Squelch sensitivity (At threshold) : 0.25 μV typ.
- Adjacent channel selectivity : 60 dB min. (70 dB typ. ; Narrow)
  70 dB min. (75 dB typ. ; Wide)
- Spurious response : 70 dB min. (80 dB typ.)
- Intermodulation rejection ratio : 70 dB min. (73 dB typ.)
- Hum and Noise (Without CCITT filter) : 34 dB min. (40 dB typ. ; Narrow)
  40 dB min. (45 dB typ. ; Wide)
- Audio output power : 0.5 W typ. at 10% distortion with an 8 Ω load
- Output impedance (Audio) : 8 Ω

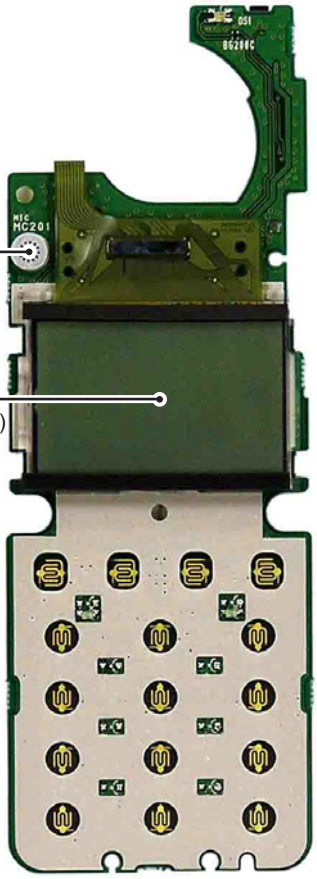
Specifications are measured in accordance with EIA-152-C/204D, TIA-603

**All stated specifications are subject to change without notice or obligation.**

# SECTION 2 INSIDE VIEWS

## • FRONT UNIT

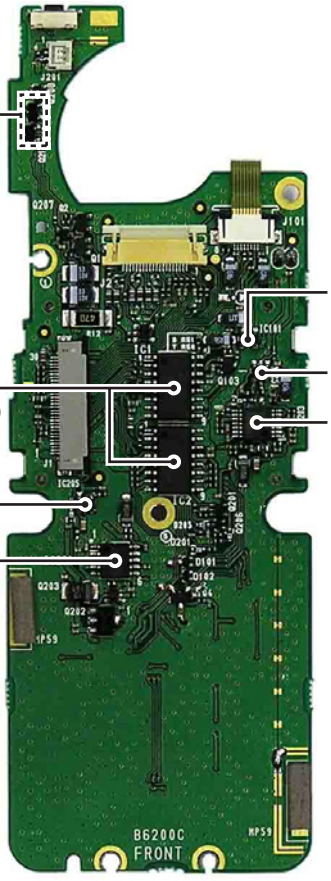
TOP VIEW



Microphone
(MC201: EM-140)

LCD
(DS2: M4-0078TAY-2)

BOTTOM VIEW




AF MUTE
(Q209: RSR025N03
Q210: RSR025N03)

Expanders
(IC1, IC2: M62320FP)

AF mute switch
(IC205: TC4S66F)

AF amplifier
(IC201: TA7368F)

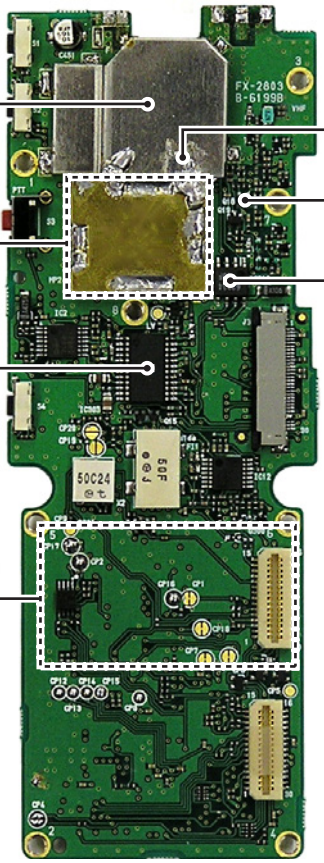
3.0V regulator
(IC101: S-812C30AMC-C2K)

Mic switch
(IC204: TC4S66F)

Mic amplifier
(IC203: NJM12902V)

## • MAIN UNIT

TOP VIEW



Power amplifier
(Q13: RD07MVS1)

VCO circuit

AF volume
(IC303: M62364FP)

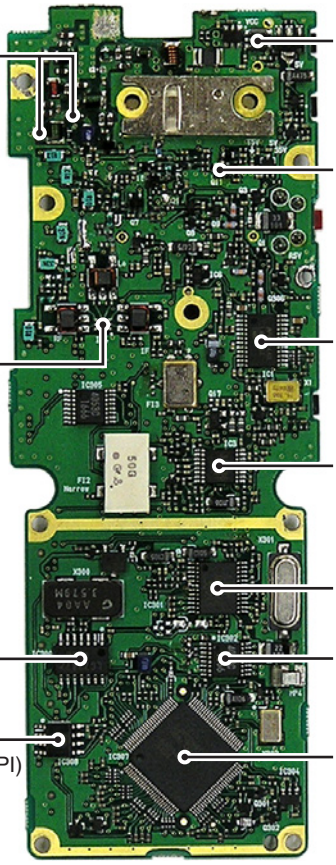
DSP unit
[IC-F70DT/DS] only

ALC amplifier
(IC5: TA75S01F)

RF amplifier
(Q18: 3SK293)

D/A converter
(IC310: M62334FP)

BOTTOM VIEW



Antenna switch
(D12, D22: 1SV307)

Mixer
(IC4: SPM5001)

DTMF DECODE
(IC300: LC73872M)

EEPROM
(IC308: HN58X24128FPI)

CPU5V regulator
(IC311: TK11250CM)

YGR amplifier
(Q11: 2SC5110-O)

PLL IC
(IC1: LMX2352TM)

FM IF IC
(IC3: TA31136FN)

Audio processor
(IC301: AK2346)

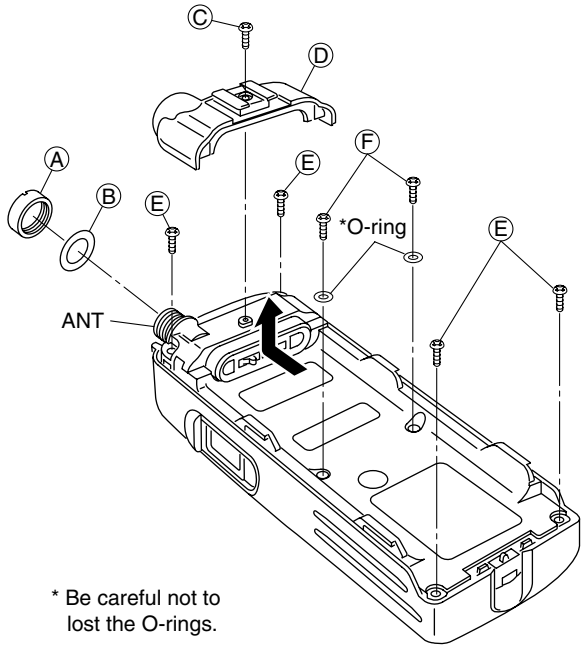
Digital/Analog switch
(IC302: BU4053BCFV)

CPU
(IC307: HD64F2268TF)

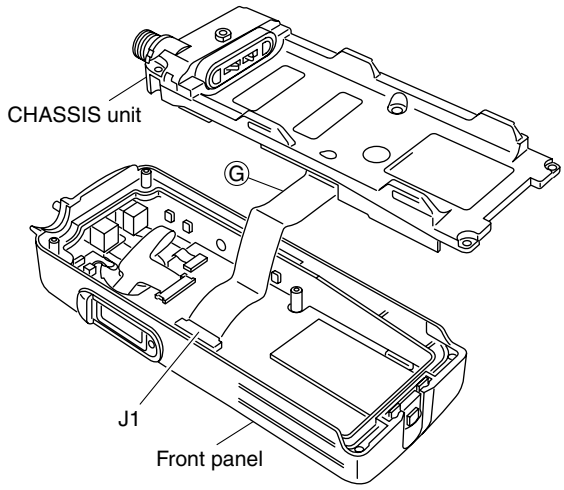
# SECTION 3 DISASSEMBLY INSTRUCTIONS

### • REMOVING THE CHASSIS UNIT

① Unscrew the ANT nut Ⓐ and remove the ANT washer Ⓑ.
② Unscrew the screw Ⓒ, and remove the rear panel Ⓓ in the direction of the arrow.
③ Unscrew 4 screws Ⓔ and 2 screws Ⓕ.

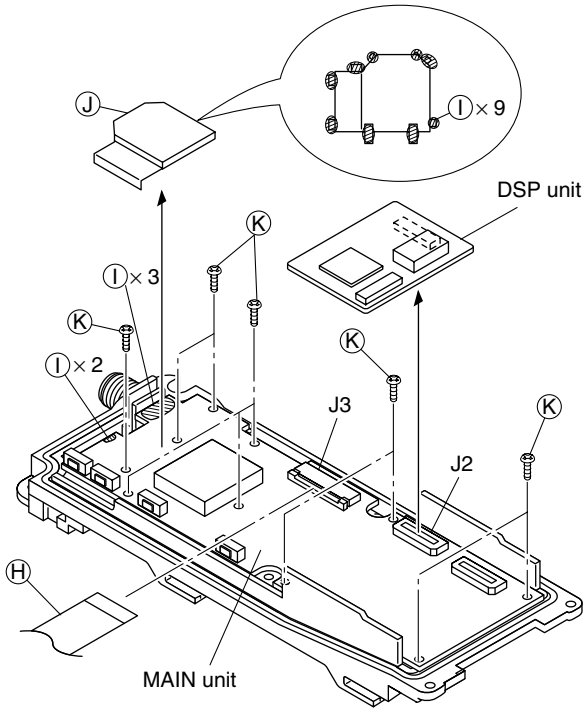



⑤ Disconnect the cable Ⓖ from J1 and remove the CHASSIS unit from the front panel.



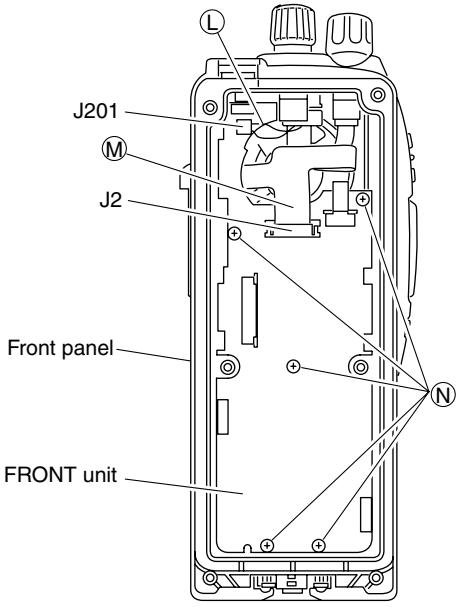

### • REMOVING THE MAIN UNIT

① Disconnect the cable Ⓗ from J3.
② Remove the DSP unit from J2.
③ Unsolder 14 points Ⓘ and remove the shield plate Ⓙ.
④ Unscrew 10 screws Ⓚ and remove the MAIN unit from the CHASSIS.




### • REMOVING THE FRONT UNIT

① Disconnect the speaker cable Ⓛ from J201.
② Disconnect the cable Ⓜ from J2.
③ Unscrew 5 screws Ⓝ and remove the FRONT unit from the front panel.



# SECTION 4 CIRCUIT DESCRIPTION

## 4-1 RECEIVER CIRCUITS

### 4-1-1 ANTENNA SWITCHING CIRCUIT

The antenna switching circuit toggles the receive line and the transmit line. This circuit does not allow transmit signals to enter the receiver circuits.

Received signals from the antenna connector (CHASSIS UNIT; J1) are passed through a two-stage low-pass filter (LPF; L22, L23, C204–C207, C209) and applied to the $\lambda/4$ type antenna switching circuit (D12, D22).

While receiving, no voltage is applied to D12 and D22. Thus, the receive line and the ground are disconnected and L41, L42, C199–C202 function as a two-stage LPF which leads received signals to the RF circuits via the limiter (D20, D21).

### 4-1-2 RF CIRCUITS

The RF circuits amplify received signals within the range of frequency coverage and filters off out-of-band signals.

The signals from the antenna switching circuit are passed through the two-stage tunable bandpass filters (BPF; D18, D19, L38, L39, C191, C193, C194, C197, C232, C233) to suppress unwanted signals. The filtered signals are amplified at the RF amplifier (Q18).

The amplified signals are passed through another two-stage tunable BPF (D15, D16, L49, L52–L55, C171, C173, C174, C176) to suppress unwanted signals again. The filtered signals are then applied to the 1st IF circuit.

### 4-1-3 1st IF CIRCUITS

The 1st mixer circuit converts the received signals into fixed frequency of the 1st intermediate frequency (IF) signal by mixing with the local oscillator (LO) signals which controlled by the PLL circuit. The IF is shifted by changing LO frequency to track the receive signal. The converted 1st IF signal is filtered at the 1st IF filter, then amplified at the 1st IF amplifier.

The signals from the two-stage tunable BPF are converted into the 46.35 MHz 1st IF signal at the double-balanced type 1st mixer (IC14, L30, L31, L33) by being mixed with the 1st LO signal generated at the RX VCOs (Q4, D4, D5, D24, D26 or Q20, D27 to D30).

The 1st IF signal from the 1st mixer is passed through the crystal filter (FI3) to suppress unwanted signals, and then amplified at the 1st IF amplifier (Q17). The amplified 1st IF signal is applied to the FM IF IC (IC3, pin 16).

### 4-1-4 2nd IF AND FM DEMODULATOR CIRCUITS

The 1st IF signal is converted into the 2nd IF signal and demodulated at the detector section in the FM IF IC. The FM IF IC contains 2nd mixer, limiter amplifier, quadrature detector, etc. in its package.

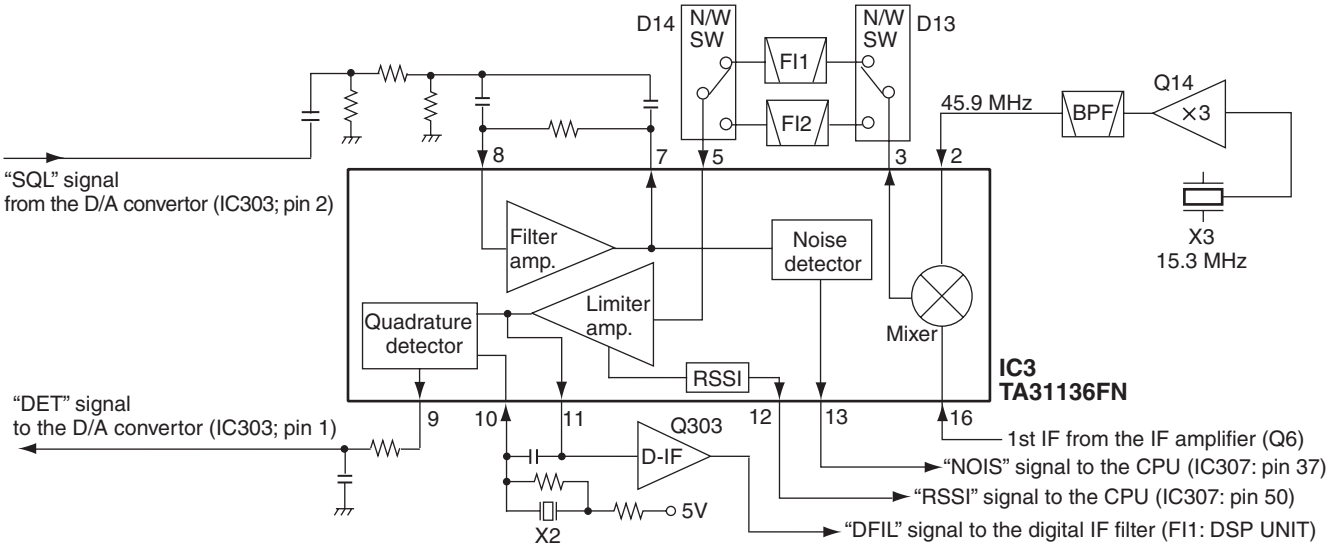
The 1st IF signal from the 1st IF amplifier (Q17) is applied to the mixer section in FM IF IC (IC3, pin 16). The applied 1st IF signal is mixed with the 45.9 MHz 2nd LO signal generated by tripling the 15.3 MHz PLL reference frequency to be converted into the 450 kHz 2nd IF signal.

The 2nd IF signal from the mixer section is output from pin 3 and passed through the N/W switches (D13, D14) and ceramic filter (FI1 or FI2) to suppress the heterodyne noise.

The N/W switches (D13, D14) toggle the receive mode wide and narrow according to “NWC” signal from the CPU (IC307, pin 19). FI1 is used for wide, and FI2 is used for narrow mode operation.

The filtered signal is applied to IC3 (pin 5) again, and amplified at the limiter amplifier section and demodulated by the quadrature detector.

**• 2ND IF AND DEMODULATOR CIRCUITS**



The quadrature detector is a detection method which uses a ceramic discriminator (X2).

The demodulated AF signals are output from pin 9, and applied to the AF cricuits.

## 4-1-5 AF CIRCUITS

The demodulated AF signals from the FM IF IC are amplified and filtered at AF circuit. This transceiver employs the base band IC for audio signal processing for both transmit and receive. The base band IC is an audio processor and composed of pre-amplifier, compressor, expander, scrambler, etc. in its package.

The AF signals from FM IF IC (IC3, pin 9) are applied to the base band IC (IC301, pin 23) via the digital/analog switch (IC302, pins 12, 14).

The applied AF signals are amplified at the amplifier section and level adjusted at the volume control section, and then suppressed unwanted 3 kHz and higher audio signals at LPF section. The filtered AF signals are applied or bypassed the TX/RX HPF, scrambler, de-emphasis, sections in sequence, then applied to another volume controller.

The TX/RX HPF filters out 250 Hz and lower audio signals, and the de-emphasis obtains –6 dB/oct of audio characteristics. The expander expands the compressed audio signals and also noise reduction function is provided.

The AF signals are level adjusted at the volume controller and amplified at the amplifier section. The amplified AF signals are output from pin 20 and applied to the D/A coverter (IC303, pin 16) to be adjusted its level, and then applied to the FRONT UNIT via J3 (pin 28).

The level controlled AF signals from the MAIN UNIT are passed through the mute switch (FRONT UNIT; IC205, pins 1, 3) and applied to the AF power amplifier (IC201, pin 4: FRONT UNIT) to obtain 500 mW of AF output power. The power amplified AF signals are applied to the internal speaker (CHASSIS UNIT; SP1).

## 4-1-6 SQUELCH CIRCUITS

### • NOISE SQUELCH

Noise squelch circuit mutes AF output signals when no RF signals are received. By detecting noise components in the demodulated AF signals, the squelch circuit switches the AF mute swithch and AF power amplifier controller ON and OFF.

A portion of the demodulated AF signals from the FM IF IC (IC3, pin 9) are applied to the converter (IC303, pin 1) to be adjusted its level. The level controlled signals are output from pin 2 and applied to the active filter (IC3, pins 7, 8; R74, R75, R77 C137–C139). The filtered signals are applied to the filter amplifier section to amplify the noise components only.

The amplified noise components are converted into the pulse-type signal at the noise detector section, and output from pin 13 as the “NOIS” signal and applied to the CPU (IC307, pin 37). Then the CPU outputs “AFON” signal from pin 18 according to the “NOIS” signal level to toggle the AF mute circuit (FRONT UNIT; IC205) and AF amplifier controller (FRONT UNIT; Q202, Q203) ON/OFF.

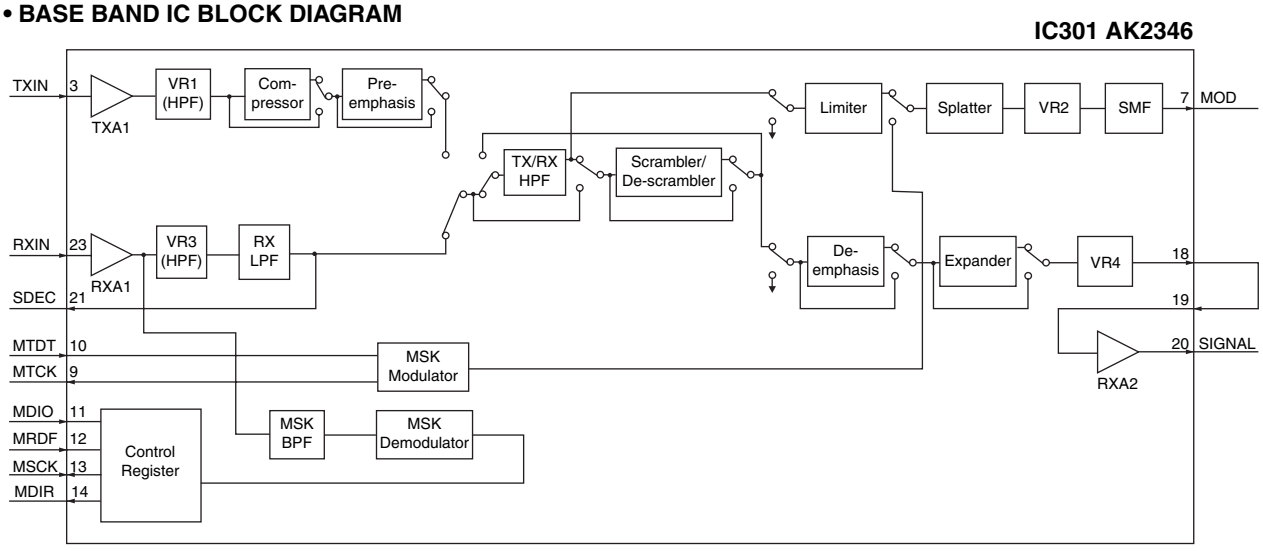
### • CTCSS AND DTCS

The tone squelch circuit detects tone signals and opens the squelch only when receiving a signal containing a matched sub audible tone (CTCSS or DTCS). When the tone squelch is in use, and a signal with a mismatched or no sub audible tone is received, the tone squelch circuit mutes the AF signals even when the noise squelch is open.

A portion of the demodulated AF signals are passed through the LPF (IC12, pins 12, 14) to filters CTCSS/DTCS signal. The filtered signal is applied to the CPU (IC307, pin 46) after being amplified at the buffer amplifier (IC2, pins 1, 3).

The CPU compares the applied signal and the set CTCSS/DTCS, then output the AF mute switch (IC205) AF amplifier controller (Q202, Q203) control signal from pin 18.

### • BASE BAND IC BLOCK DIAGRAM



# 4-2 TRANSMITTER CIRCUITS

## 4-2-1 MICROPHONE AMPLIFIER CIRCUIT

The microphone amplifier circuit amplifies the audio signals from microphone within +6 dB/oct pre-emphasis characteristic. The microphone signals are processed in the base band IC which contains microphone amplifier, compressor, scrambler, limiter, splatter filter, etc. in its package.

The audio signals from the microphone (FRONT UNIT; MC201) are passed through the microphone mute switch (FRONT UNIT; IC204). The switched signals are amplified at the microphone amplifiers (FRONT UNIT; IC203, pins 1, 2, 13, 14) to obtain within +6 dB/oct pre-emphasis characteristics. The amplified signals are applied to the MAIN UNIT via J1 (pin 2).

The amplified MIC signals from the FRONT UNIT are applied to the base band IC (IC301, pin 3). The applied MIC signals are amplified at the amplifier section, and level adjusted at the volume control section. The level adjusted MIC signals are applied or bypassed the compressor section, pre-emphasis section, TX/RX HPF, de-scrambler, limiter, splatter, in sequence, then applied to another volume controller.

The compressor compresses the MIC signals to provide high S/N ratio for receive side, and the pre-emphasis obtains +6 dB/oct audio characteristics. The TX/RX HPF filters out 250 Hz and lower audio signals, the limiter limits its level and the splatter filters out 3 kHz and higher audio signals.

The filtered MIC signals are level adjusted at another volume control section and amplified at the amplifier section, and then output from pin 7 via smoothing section (SMF).

## 4-2-2 MODULATION CIRCUIT

The modulation circuit modulates the VCO oscillating signal with the audio signals from the microphone.

MIC signals from the base band IC (IC301) are passed through the MIC switch (IC302, pins 5, 4), PM filter (C338, R327), FM/PM switch (IC302, pins 1, 15), and then applied to the AF mixer (IC12, pin 2) to be mixed with CTCSS/DTCS signals.

The mixed MIC signals are applied to the D/A converter (IC303, pin 4) to be adjusted its level. The level adjusted AF signals are output from pin 3 and applied to the modulation circuit (D8) to modulate the VCO oscillating signal by changing the reactance of D8 at the TX VCO (Q5, D6, D7, D25).

The CTCSS/DTCS signals are generated by the CPU (IC307) and output from pins 89–91 (“CENC0,” “CENC1,” ”CENC2”). The CTCSS/DTCS signals are passed through 3 registers (R374–R376) to change its wave form. The wave form changed CTCSS/DTCS signals are then passed through the LPF (IC12, pins 8, 10) and applied to the converter (IC303, pin 9) to be adjusted its level, and output from pin 10.

The level adjusted CTCSS/DTCS signals are applied to the AF mixer (IC12, pin 2) to be mixed with MIC signals. The mixed CTCSS/DTCS signals are output from pin 1 and applied to the D/A converter (IC303, pin 4) to be adjusted its level again, then output from pin 3. The CTCSS/DTCS signals from the D/A converter are applied to the both of reference frequency oscillator (X1) and modulation circuit (D8) to modulate the reference frequency signal and VCO oscillating signal.

The modulated VCO output signal is amplified at the buffer amplifiers (Q6, Q10) and is then applied to the YGR amplifier (Q11) via the TX/RX switch (D10).

## 4-2-3 TRANSMIT AMPLIFIERS

The VCO output signal is amplified to transmit output power level by the transmit amplifiers .

The buffer-amplified signal from the TX/RX switch is applied to the YGR (Q11), the driver (Q12), and power (Q13) amplifiers, to be amplified to the transmit output power level. The power amplified transmit signal is passed through the power detector (D11), antenna switch (D12), and two-stage LPFs (L22, L23, C204–C207, C209), and then applied to the antenna connector (CHASSIS UNIT; J1).

## 4-2-4 ALC CIRCUIT

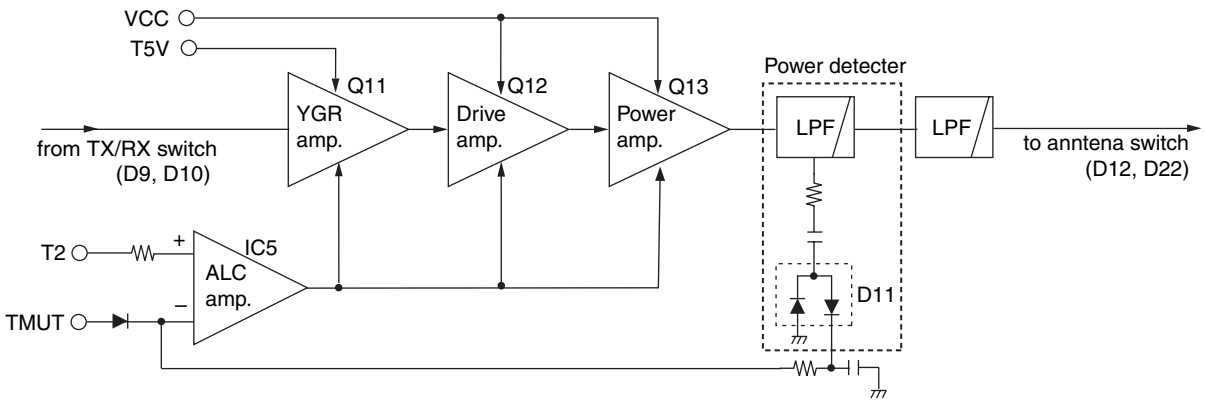
The ALC (Automatic Level Control) circuit stabilizes transmit output power and controls transmit output power High or Low.

The power detector circuit (D11) detects the transmit output signal and converts it into DC voltage.

The detected voltage is applied to the ALC amplifier (IC5, pin 3). The “T2” signal from the D/A converter (IC310, pin 2), controlled by the CPU (IC307), is applied to the another input (pin 1) for reference, and the "T2" signal also controls transmit output power (5 W or 1 W).

The output voltage from the ALC amplifier controls the bias of the YGR (Q11), driver (Q12) and power amplifier (Q13) to reduce the output power by comparing the detected voltage and the reference voltage. Thus the ALC circuit maintains a constant transmit output power.

**• ALC CIRCUIT**



# 4-3 PLL CIRCUITS

## 4-3-1 PLL CIRCUIT (MAIN UNIT)

The PLL circuit provides stable oscillation of the transmit frequency and receive 1st LO frequency. The PLL circuit compares the phase of the divided VCO frequency with the reference frequency. The PLL output frequency is controlled by the divided ratio (N-data) of the programmable divider.

The PLL circuit contains the two RX VCOs (Q4, D4, D5, D24, D26 for 154–174 MHz, Q20, D27–D30 for 136–153.995 MHz) and one TX VCO (Q5, D6, D7, D25). The oscillated signal is amplified at the buffer amplifiers (Q6, Q9) and applied to the PLL IC (IC1, pin 6) after being passed through the BPF (Q1, D1, D2, L2, L56, L57, L302, C12, C15, C20, C22, C25–C28, C32).

Q1, D1 and D2 compose of a BPF switch which toggles the filtering frequencies for TX and RX, controlled by “T5C” signal from the CPU (IC307 pin 16).

The applied signal is divided at the prescaler and programmable divider section by the N-data ratio from the CPU. The divided signal is detected at the phase detector section via divided ratio adjustment section using the reference frequency passed through the reference divider and output from pin 4 after being passed through the charge pump section. The output signal is passed through the loop filter (R16, R17, C17, C24, C29, C31) and is then applied to the VCO circuits.

If the oscillated signal drifts, its phase changes from that of the reference frequency, causing a lock voltage change to compensate for the drift in the oscillated frequency.

## 4-3-2 VCO CIRCUITS

The VCO circuits contain separate two RX VCOs (Q4, D4, D5, D24, D26 for 154–174 MHz, Q20, D27–D30 for 136–153.995 MHz) and one TX VCO (Q5, D6, D7, D25). The oscillated signal is amplified at the buffer amplifiers (Q6, Q10) and is then applied to the TX/RX switch (D9, D10). Then the receive 1st LO (RX) signal is applied to the 1st mixer (IC14, L30, L31, L33), and the transmit (TX) signal is applied to the YGR amplifier (Q11).

A portion of the signal from the buffer amplifier (Q6) is fed back to the PLL IC (IC1, pin 6) via the buffer amplifier (Q9) and the BPF (Q1, D1, D2, L2, L56, L57, L302, C12, C15, C20, C22, C25 to C28, C32) as the comparison signal.

# 4-4 POWER SUPPLY CIRCUITS

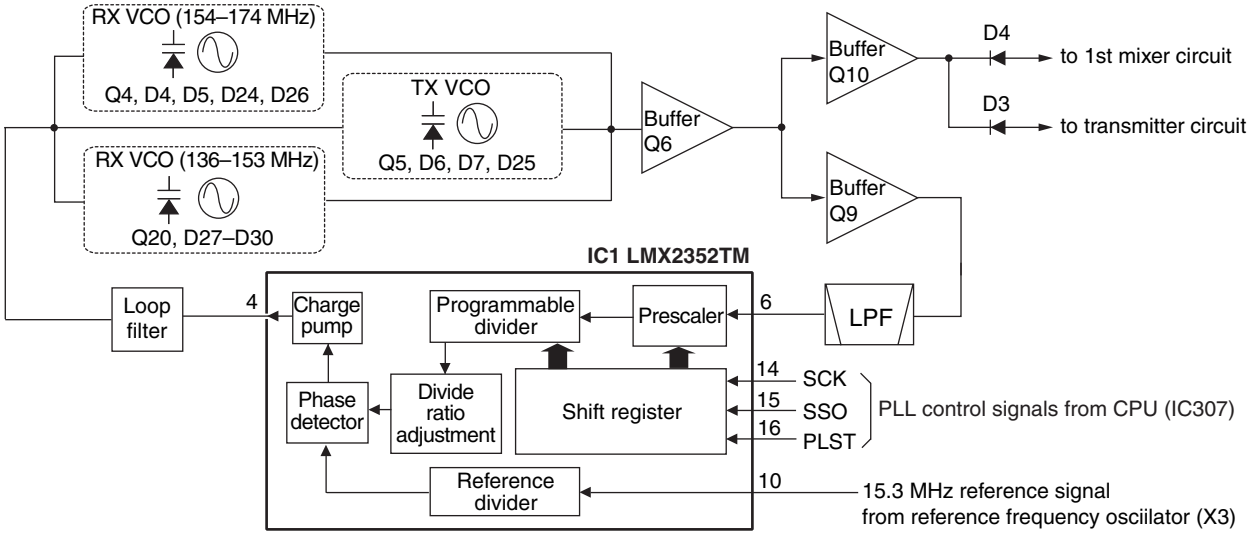
## 4-4-1 VOLTAGE LINES (MAIN UNIT)

| LINE | DESCRIPTION |
|---|---|
| VCC | The voltage from the attached battery pack passed through the power switch (Q309). |
| CPU5V | Common 5 V for the CPU (IC307) converted from the VCC line at the CPU5V regulator (IC311). |
| +5V | Common 5 V line converted from the VCC line at the +5V regulator (Q307, Q308). |
| T5V | 5 V for the transmit circuits regulated from the +5V line by the T5V switch (Q305).<br>The switch is controlled by the "T5C" signal from the CPU (IC307, pin 16). |
| S5V | 5 V for the power save line regulated from the +5V line by the S5V switch (Q304).<br>The switch is controlled by the "S5C" signal from the CPU (IC307, pin 27). |
| R5V | 5 V for the receive circuits regulated from the +5V line by the R5V switch (Q306).<br>The regulator is controlled by the "R5C" signal from the CPU (IC307, pin 26). |

## 4-4-2 VOLTAGE LINES (DSP UNIT)

| LINE | DESCRIPTION |
|---|---|
| DVDD3.3V | 3.3 V for the CPU (IC12; DSP UNIT), DSP IC (IC7) and EEPROM (IC17) regulated from the +5V line by the +3VC regulator (IC1). |
| CVDD1.5V | 1.5 V for the DSP IC (IC7) converted from the +5V line at the +1.5VA regulator (IC2). |
| +3VD | 3.3 V for the A/D converter (IC8) and LINER CODEC IC (IC9) from the +5V line at the +3VD regulator (IC3). |

**• PLL CIRCUIT**



## 4-5 DIGITAL CIRCUIT (IC-F70DT/DS only)

**• WHILE RECEIVING**

A portion of the 2nd IF sigal from the limiter amplifier section in the FM IF IC (IC3) is output from pin 11 and is applied to the 2nd IF amplifier (Q303). The amplified 2nd IF signal is applied to the DSP UNIT via J2 (pin 11).

The 2nd IF signal from the MAIN UNIT is passed through the ceramic BPF (DSP UNIT; FI1) to suppress heterodyne noise, and amplified again at the digital IF amplifier (DSP UNIT; IC5, pin 4). The amplified 2nd IF signal is applied to the A/D converter (DSP UNIT; IC8, pin 3) to be converted into digital IF data, then applied to the DSP IC (DSP UNIT; IC7). The DSP IC converts the digital IF into the digital audio signal.

The digital audio signal from the DSP IC are converted into analog audio signals at the LINER CODEC IC (IC9) and output from pin 16. The audio signals from the LINER CODEC IC are applied to the MAIN UNIT via J1 (pin 22).

The audio signals from the DSP UNIT are applied to the base band IC (MAIN UNIT; IC301, pin 20) after being passed through the digital/analog switch (MAIN UNIT; IC302 ).

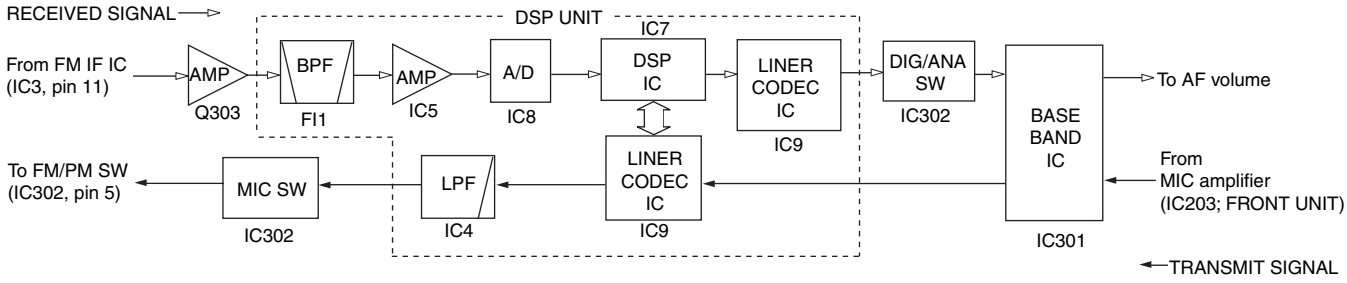
**• WHILE TRANSMITTING**

The microphone signals from the base band IC (IC301, pin 7) are applied to the DSP UNIT via J2 (pin 4).

The microphone signals from the MAIN UNIT are applied to the LINER CODEC IC (DSP UNIT; IC9, pin 2) to convert into the digital audio signal.

The converted digital audio signal is processed by the DSP IC (DSP UNIT; IC7), and applied to the LINER CODEC IC (DSP UNIT; IC9) again. The signal from the LINER CODEC IC (IC9, pin 15) is passed through the LPFs (DSP UNIT; IC4, pins 3, 4, 5, 7) and applied to the MAIN UNIT via J1, and then passed through the microphone switch (MAIN UNIT; IC302, pins 3, 4), FM filter (R328, C335), FM/PM switch (IC302, pins 2, 15).

**• DIGITAL MODE BLOCK DIAGRAM**




## 4-6 PORT ALLOCATIONS

### 4-6-1 CPU (IC307)

| Pin number | Port name | Description |
|---|---|---|
| 4–7 | R1, R2, R4, R8 | Input ports for rotary selector (VR UNIT; S1). |
| 10 | SSO | Outputs serial data to the PLL IC (IC1, pin 15) and D/A converter (IC303, pin 8). |
| 11 | SCK | Outputs clock signal to the PLL IC (IC1 pin 14) and D/A converter (IC303, pin 7), etc. |
| 13 | PLST | Outputs strobe signals to the PLL IC (IC1, pin 16). |
| 15 | DASW | Outputs control signal to the digital /analog switch (IC302).<br>Low: While analog mode is selected. |
| 16 | TXC | Outputs the T5V switch (Q305) control signal.<br>Low: During transmit. |
| 17 | TMUT | Outputs the ALC amplifier (IC5) control signal.<br>Low: During receive. |
| 18 | AFON | Outputs control signal for AF mute circuit (FRONT UNIT; IC205) and AF power amplifier (FRONT UNIT; IC201).<br>High: AF amplifier (IC201) is activated. |
| 19 | NWC | Outputs wide/narrow switch (D13, D14) control signal.<br>High: When narrow mode is selected. |

| Pin number | Port name | Description |
|---|---|---|
| 20 | DDSD | Input port for serial data from the DTMF decoder IC (IC300, pin 9). |
| 21 | DDAC | Outputs clock signals to the DTMF decoder IC (IC300, pin 10). |
| 26 | R5C | Outputs R5V switch (Q306) control signal.<br>High:While receiving. |
| 27 | S5C | Outputs S5V switch (Q304) control signal.<br>High:In power save mode.. |
| 29 | PTTO | Input port for optional unit.<br>Low: Switch ON. |
| 30 | EM | Input port for the emegency switch (FRONT UNIT; S117).<br>Low: While emegency switch is pushed. |
| 32 | RMUT | Input port for the AF mute signal from the optional unit via J1 or J2.<br>Low: While RX audio is muted. |
| 33 | MMUT | Input port for the microphone mute signal from the optional unit via J1 or J2.<br>Low: While microphone audio is muted. |
| 34–36 | OPT1–OPT3 | I/O ports for the connected optional unit to J1. |

### 4-6-1 CPU (continued)

| Pin number | Port name | Description |
|---|---|---|
| 37 | NOIS | Input port for the noise signal from the FM IF IC (IC3, pin 13). |
| 38 | PWRSW | Input port for the [VOL] control (VR UNIT; R1).<br>Low: While power is ON. |
| 39 | DDST | Input port for the decodedDTMF signals from the DTMF decoder IC (IC300, pin 11). |
| 40 | CIRQ | Inputs offering signal from the optional unit and DSP unit.<br>Low: Offering signal is output. |
| 41 | PWRO | Outputs control signal for the power switch circuit (Q309, Q310).<br>High: Power ON. |
| 43 | SENC | Outputs single tone encode signal. |
| 44 | BEEP | Outputs beep audio signals. |
| 45 | SDEC | Input port for single tone decode signal from the base band IC (IC301, pin 1). |
| 46 | CDEC | Input port for CTCSS/DTCS signal from the LPF (IC12, pin 7). |
| 47 | ULCK | Input port for the PLL unlock signal.<br>Low: The PLL circuit is unlocked. |
| 48 | BATV | Input port for the connected battery pack for the low battery voltage detection.<br>Low: The battery voltage is low. |
| 49 | LVIN | Input port for the PLL lock voltage. |
| 50 | RSSI | Input port for the "RSSI" signal from the FM IF IC (IC3, pin 12). |
| 51 | TEMP/ OPTV | • Input port for the transceiver's internal temperature detecting signal.<br>High: Internal temperature is high.<br>• Input port for the optional unit detecting signal.<br>High: While connecting optional unit to the multiconnector. |
| 55 | SIDE1 | Input port for [UP] switch (MAIN UNIT; S1).<br>Low: While [UP] switch is pushed. |
| 68 | DAST | Outputs strobe signals to the D/A converter (IC303, pin 6). |
| 69 | DSDA | I/O port for data signal to the D/A converter (IC310, pin 6). |
| 72 | SPCON | Outputs "SPCON" signal.<br>Low: Audio output. |
| 78 | MTCK | Input port for transmitting MSK clock signal from the base band IC (IC301, pin 9). |
| 79 | KR | Input port for key matrix.<br>Low: While any of key on the 10-keypad (including [P0]–[P3]) is pushed. |
| 80 | FSDA | I/O port for the serial data signal for the expander (FRONT UNIT; IC2). |
| 81 | FSCL | Outputs clock signal to the expander (FRONT UNIT; IC2). |
| 88 | SIDE2 | Input port for [DOWN] switch (MAIN UNIT; S2).<br>Low: While [DOWN] switch is pushed. |
| 89–91 | CENC0–CENC2 | Output the CTCSS/DTCS signals. |
| 92 | SIDE3 | Input port for [MONITOR] switch (MAIN UNIT; S4).<br>Low: While [MONITOR] switch is pushed. |
| 93 | MTDT | Outputs the MSK data to the base band IC (IC301, pin 10). |
| 94 | MDIR | Outputs serial data control signal to the base band IC (IC301, pin 14 ). |
| 95 | MDIO | I/O port for the serial data signals from/to the base band IC (IC301, pin 11). |
| 96 | MSCK | Outputs clock signal for the base band IC (IC301, pin 13). |
| 97 | PMFM | Outputs the the FM/PM switch (IC302, pin 11) control signal.<br>High:While PM is selected. |
| 98 | ESDA | I/O port for data signals from/to the EEPROM (IC308, pin 5). |
| 99 | ESCL | Outputs clock signal to the EEPROM (IC308, pin 6). |
| 100 | CODE8 | Output port for "CODE8" signal. |

### 4-6-2 D/A CONVERTER (MAIN UNIT; IC303)

| Pin number | Port name | Description |
|---|---|---|
| 2 | SQL | Outputs AF signals to the squelch circuit (IC3, pin 8). |
| 3 | MOD | Outputs modulation signals to the modulation circuit (D8). |
| 10 | TENC | Outputs CTCSS/DTCS signals. |
| 11 | BAL | Outputs deviation balance control signal. |
| 14 | BEPV | Outputs beep audio signals to the speaker via the AF amplifier (FRONT UNIT; IC201). |
| 15 | SIGNAL | Outputs AF signals to the speaker via the AF amplifiers (FRONT UNIT; IC201). |
| 22 | TONE | Outputs single tone signal. |
| 23 | REF | Outputs reference oscillator control signal. |

### 4-6-3 D/A CONVERTER (MAIN UNIT; IC310)

| Pin number | Port name | Description |
|---|---|---|
| 1 | T1 | Outputs the bandpass filters (D18, D19) tuning signal. |
| 2 | T2 | • While receiving:<br>Outputs the bandpass filters (D15, D16) tuning signal.<br>• While transmitting:<br>Outputs the TX power control signal which selects TX output power of HIGH or LOW. The output signal is applied to the ALC amplifier (IC5, pin 1). |
| 3 | TXLVA | Outputs TX VCO lock voltage. |
| 4 | RXLVA | Outputs RX VCO lock voltage. |

# SECTION 5 ADJUSTMENT PROCEDURES

## 5-1 PREPARATION

When adjusting IC-F70DS/DT/S/D, the optional CS-F70/F1700 ADJ ADJUSTMENT SOFTWARE (Rev. 1.1 or later), OPC-966 JIG CABLE (modified OPC-966 CLONING CABLE; see illustration page 5-2) are required.

### ■ REQUIRED TEST EQUIPMENT

| EQUIPMENT | GRADE AND RANGE | EQUIPMENT | GRADE AND RANGE |
|---|---|---|---|
| DC power supply | Output voltage : 7.2 V DC<br>Current capacity : 3 A or more | Audio generator | Frequency range : 300–3000 Hz<br>Measuring range : 1–500 mV |
| FM deviation meter | Frequency range : DC–300 MHz<br>Measuring range : 0 to ±10 kHz | Attenuator | Power attenuation : 50 or 60 dB<br>Capacity : 10 W |
| Frequency counter | Frequency range : 0.1–300 MHz<br>Frequency accuracy : ±1 ppm or better<br>Sensitivity : 100 mV or better | Standard signal generator (SSG) | Frequency range : 0.1–300 MHz<br>Output level : 0.1 µV to 32 mV (–127 to –17 dBm) |
| Digital multimeter | Input impedance : 10 MΩ/V DC or more | AC millivoltmeter | Measuring range : 10 mV to 10 V |
| RF power meter | Measuring range : 1–10 W<br>Frequency range : 100–300 MHz<br>Impedance : 50 Ω<br>SWR : Better than 1.2 : 1 | Oscilloscope | Frequency rang : DC–20 MHz<br>Measuring range : 0.01–20 V |
| | | External speaker | Input impedance : 8 Ω<br>Capacity : 1 W or more |

### ■ SYSTEM REQUIREMENTS

- Microsoft® Windows® 98/98SE/Me/2000/XP
- RS-232C serial port (D-sub 9 pin)

### ■ ADJUSTMENYT SOFTWARE INSTALLATION

① Quit all applications when Windows is running.
② Insert the CD into the appropriate CD drive.
③ Double-click the “Setup.exe” contained in the ‘CS-F70/F1700 ADJ’ folder in the CD drive.
④ The “Welcome to the InstallShield Wizard for CS-F70/F1700 ADJ” will appear. Click [Next>].
⑤ The “Choose Destination Location” will appear. Then click [Next>] to install the software to the destination folder. (e.g. C:\Program Files\Icom\CS-F70/F1700 ADJ)
⑥ After the installation is completed, the “InstallShield Wizard Complete” will appear. Then click [Finish].
⑦ Eject the CD.
⑧ Program group ‘CS-F70/F1700 ADJ’ appears in the ‘Programs’ folder of the start menu, and ‘CS-F70/F1700 ADJ’ icon appears on the desk top screen.

### ■ BEFORE STARTING SOFTWARE ADJUSTMENT

Clone the adjustment frequencies into the transceiver, and-set the configuration using with the CS-F70/F1700 CLONING SOFTWARE before starting the software adjustment. Otherwise, the transceiver can not start software adjustment.

**CAUTION!: BACK UP** the originally programmed memory data in the transceiver before programming the adjustment frequencies.
When program the adjustment frequencies into the transceiver, the transceiver’s memory data will be overwritten and lose original memory data at the same time.

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### ■ STARTING SOFTWARE ADJUSTMENT

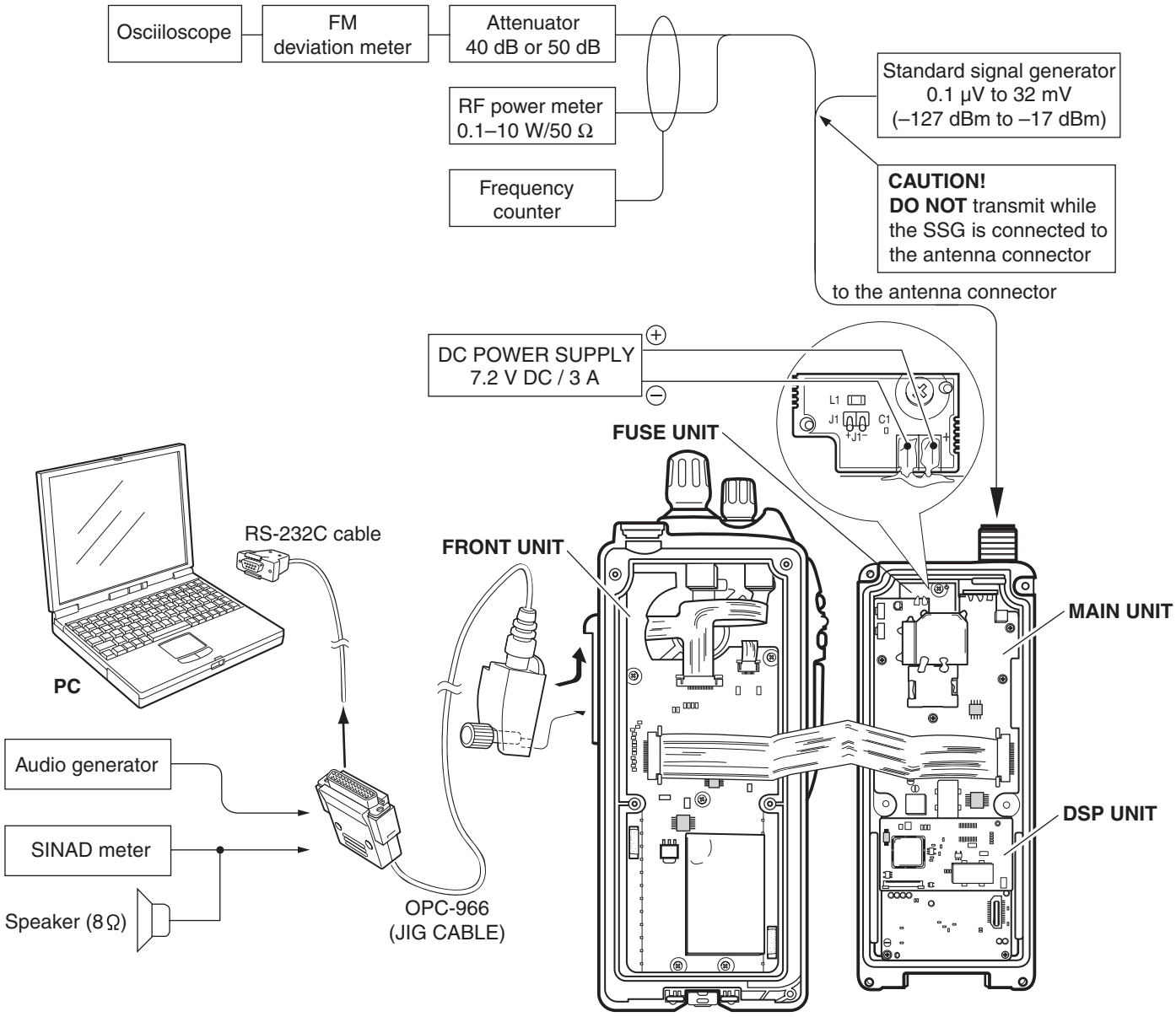
① Connect the transceiver and PC with OPC-966 JIG CABLE.
② Turn the transceiver power ON.
③ Boot up Windows, and click the program group ‘CS-F70/F1700 ADJ’ in the ‘Programs’ folder of the [Start] menu, then CS-F70/F1700 ADJ’s window appears.
④ Click ‘Connect’ on the CS-F70/F1700 ADJ’s window, then appears transceiver’s up-to-date condition.
⑤ Set or modify adjustment data as desired.

**• ADJUSTMENT FREQUENCY LIST**

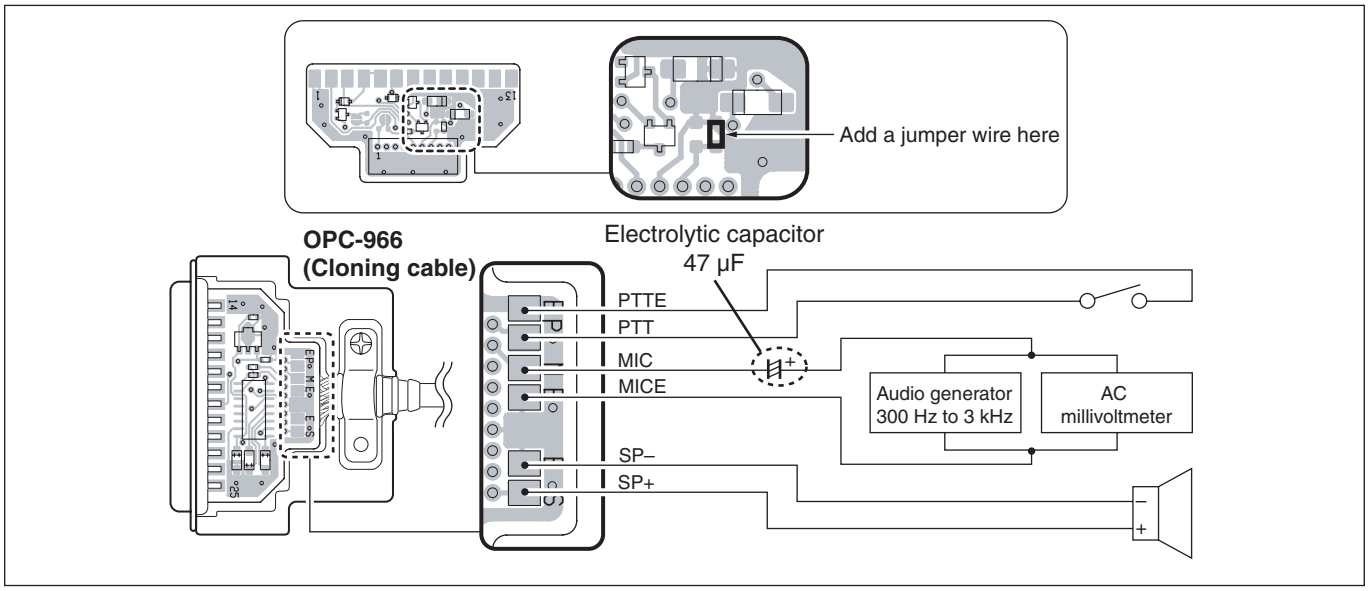
| CH | FREQUENCY | ADJUSTMENT ITEM |
|---|---|---|
| 1 | 153.900 MHz | TX power : Low1<br>Mode : Wide |
| 2 | 174.000 MHz | TX power : Low1<br>Mode : Narrow |
| 3 | 155.000 MHz | TX power : High<br>Mode : Wide |
| 4 | 155.000 MHz | TX power : Low2<br>Mode : Wide |
| 5 | 155.000 MHz | TX power : Low1<br>Mode : Wide |
| 6 | 136.000 MHz | TX power : Low1<br>Mode : Wide |
| 7 | 174.000 MHz | TX power : Low1<br>Mode : Wide |
| 8 | 136.000 MHz | TX power : Low1<br>Mode : Narrow |
| 9* | 155.000 MHz | TX power : Low1<br>Mode : Digital<br>Preamble Length† : 270 |
| 10* | 136.000 MHz | TX power : Low1<br>Mode : Digital<br>Preamble Length† : 270 |
| 11* | 174.000 MHz | TX power : Low1<br>Mode : Digital |
| 12 | 155.000 MHz | TX power : Low1<br>Mode : Wide<br>CTCSS : 151.4 Hz |
| 13 | 155.000 MHz | TX power : Low1<br>Mode : Narrow |

*; IC-F70DT/DS only
†; [USA-02] only

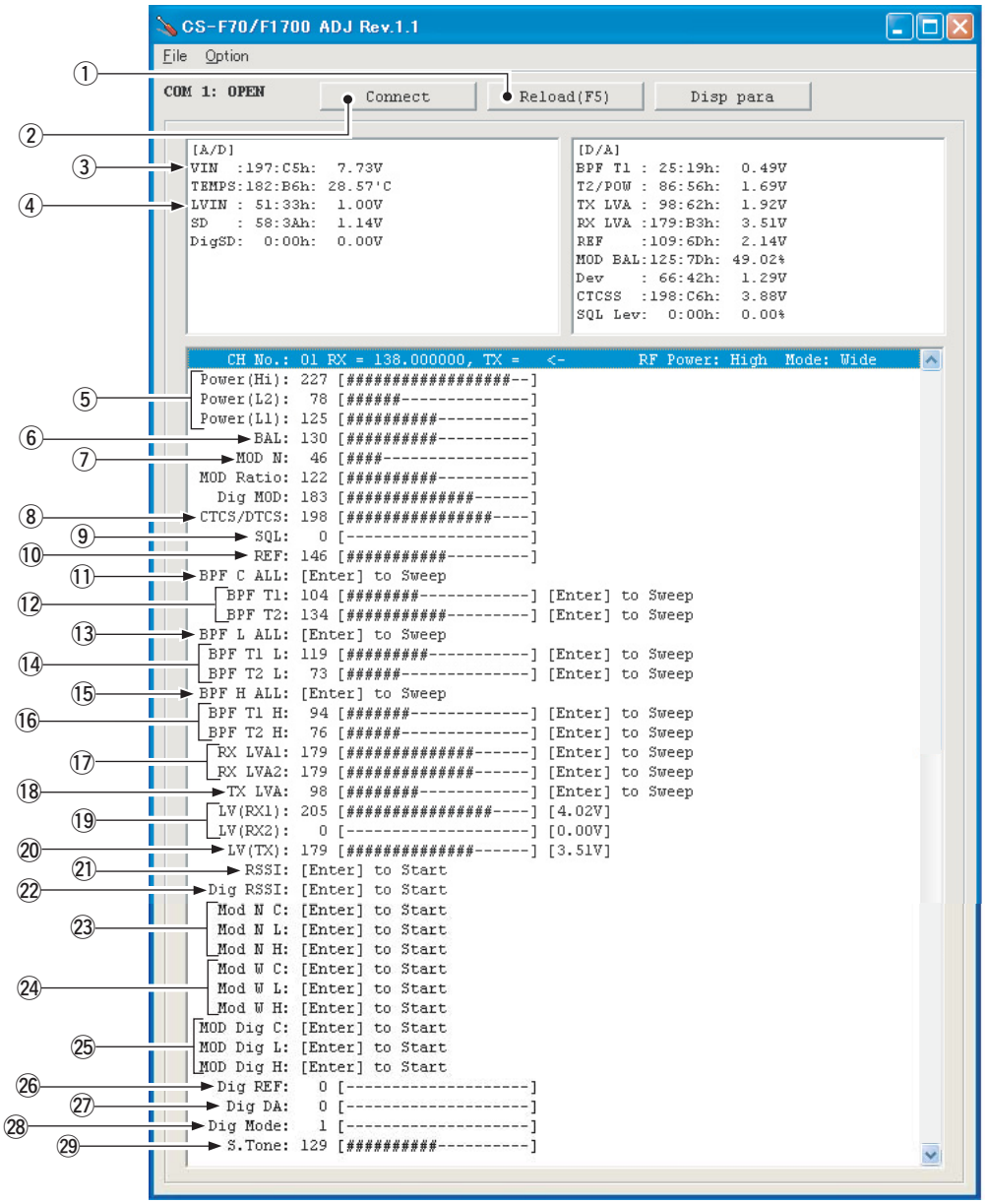
## • CONNECTION


Osciiloscope
FM deviation meter
Attenuator 40 dB or 50 dB
RF power meter 0.1–10 W/50 Ω
Frequency counter
Standard signal generator 0.1 µV to 32 mV (–127 dBm to –17 dBm)
CAUTION! DO NOT transmit while the SSG is connected to the antenna connector
to the antenna connector
DC POWER SUPPLY 7.2 V DC / 3 A
FUSE UNIT
RS-232C cable
FRONT UNIT
MAIN UNIT
PC
Audio generator
SINAD meter
Speaker (8 Ω)
OPC-966 (JIG CABLE)
DSP UNIT

## • JIG cable



## • PC SCREEN EXAMPLE




**NOTE:** The above values for settings are example only.
Each transceiver has its own specific values for each setting.

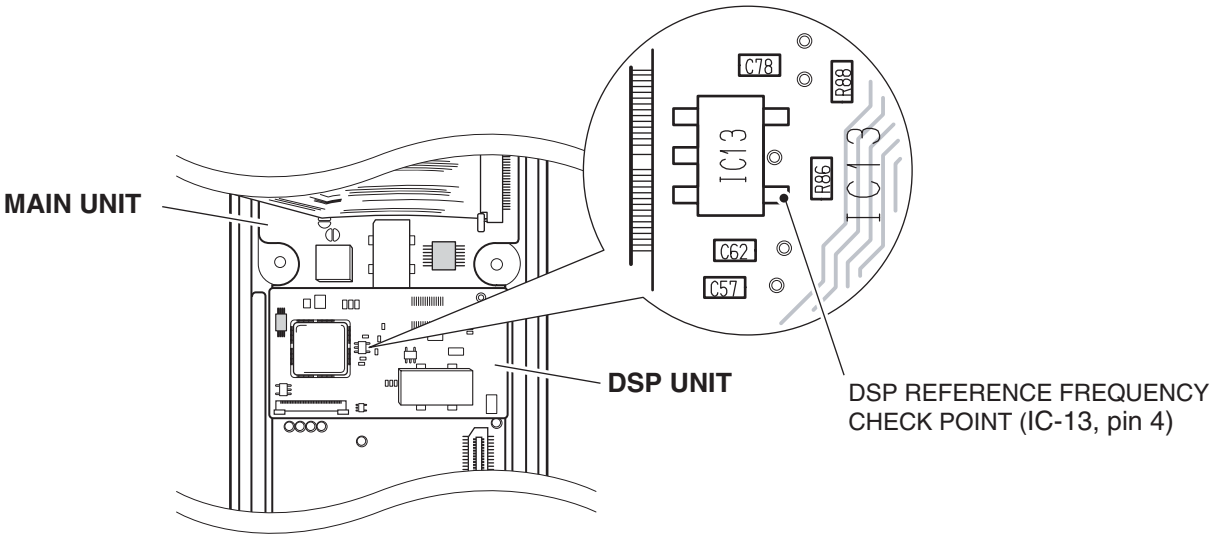
①: Reload adjustment data
②: Transceiver's connection state
③: Connected DC voltage measurement
④: PLL lock voltage measurement
⑤: RF output power
⑥: FM modulation balance
⑦: FM modulation preset
⑧: CTCSS/DTCS deviation
⑨: Squelch level
⑩: Reference frequency
⑪: Receive sensitivity for center (automatic)
⑫: Receive sensitivity for center (manual)
⑬: Receive sensitivity for low edge (automatic)
⑭: Receive sensitivity for low edge (manual)
⑮: Receive sensitivity for high edge (automatic)
⑯: Receive sensitivity for high edge (manual)
⑰: PLL lock voltage adjust for RX (manual)
⑱: PLL lock voltage adjust for TX (manual)
⑲: PLL lock voltage preset for RX (automatic)
⑳: PLL lock voltage preset for TX (automatic)
㉑: S-meter
㉒: S-meter (digital)
㉓: Deviation (narrow)
㉔: Deviation (wide)
㉕: Deviation (digital)
㉖: DSP reference frequency
㉗: Base band center voltage
㉘: Digital mode
㉙: 2/5 TONE, DTMF deviation

## 5-2 SOFT WARE ADJUSTMENT

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard

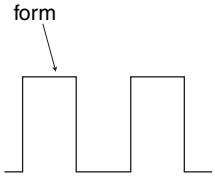
| ADJUSTMENT | | ADJUSTMENT CONDITION | MEASUREMENT | | VALUE |
|---|---|---|---|---|---|
| | | | UNIT | OPERATION | |
| PLL LOCK VOLTAGE [RX LVA1] | 1 | • Operating CH. : CH 2<br>• Preset [LV (RX1)] : 169 [3.30 V]<br>• Receiving | PC screen | Click [Reload (F5)] button, then check the "LVIN" item on the CS-F70/F1700 ADJ's screen. | 3.3 V |
| [RX LVA2] | 2 | • Operating CH. : CH 1<br>• Preset [LV (RX2)] : 179 [3.50 V]<br>• Receiving | | | 3.5 V |
| [TX LVA] | 3 | • Operating CH. : CH 2<br>• Preset [LV (TX)] : 179 [3.50 V]<br>• Transmitting | | | 3.5 V |
| | **CONVENIENT:**<br>The PLL lock voltage can be adjusted automatically.<br>Put the cursor on each items "RX LVA1"/"RX LVA2"/"TX LVA" and then push [ENTER] key of the connected PC's keyboard. | | | | |
| PLL LOCK VOLTAGE | 1 | • Operating CH. : CH 2<br>• Receiving | PC screen | Click [Reload (F5)] button, then check the "LVIN" item on the CS-F70/F1700 ADJ's screen. | 3.2–3.4 V (Verify) |
| | 2 | • Operating CH. : CH 1<br>• Receiving | | | 3.4–3.6 V (Verify) |
| | 3 | • Operating CH. : CH 2<br>• Transmitting | | | 3.4–3.6 V (Verify) |
| REFERENCE FREQUENCY [REF] | | • Operating CH. : CH 2<br>• Connect an RF power meter or 50 Ω dummy load to the antenna connector.<br>• Transmitting | Top panel | Loosely couple a frequency counter to the antenna connector. | 174.000000 MHz ±100 Hz |
| DSP REFERENCE FREQUENCY* [Dig REF] | | • Operating CH. : CH 9<br>• Receiving | DSP unit | Connect a frequency counter to the pin 4 of IC13 on the DSP unit through a 1000 pF capacitor. (see the illust below) | 12.288000 MHz |
| BASE BAND CENTER VOLTAGE* [Dig DA] | | • Operating CH. : CH 9<br>• Receiving | PC screen | Set the "Dig DA" item to 70. | |

*; IC-F70DT/DS only



## SOFTWARE ADJUSTMENT (Continued)

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard

| ADJUSTMENT | | ADJUSTMENT CONDITION | MEASUREMENT | | VALUE |
|---|---|---|---|---|---|
| | | | UNIT | OPERATION | |
| OUTPUT POWER [Power (Hi)] | 1 | • Operating CH. : CH 3<br>• Transmitting | Top panel | Connect an RF power meter to the antenna connector. | 5.0 W |
| [Power (L2)] | 2 | • Operating CH. : CH 4<br>• Transmitting | | | 2.0 W |
| [Power (L1)] | 3 | • Operating CH. : CH 5<br>• Transmitting | | | 1.0 W |
| MODULATION BALANCE [BAL] | 1 | • Operating CH. : CH 5<br>• Preset [MOD N] : 100<br>• No audio applied to the JIG cable.<br>• Set an FM deviation meter as;<br>HPF : OFF<br>LPF : 20 kHz<br>De-emphasis : OFF<br>Detector : (P–P)/2<br>• Push [P0] while transmitting. | Top panel | Connect an FM deviation meter with an oscilloscope to the antenna connector through an attenuator. | Set to square wave form  |
| FM DEVIATION (NARROW) [MOD N C] | 1 | • Operating CH. : CH 13<br>• Connect an audio generator to the JIG cable and set as;<br>: 1.0 kHz/150 mV rms<br>• Set an FM deviation meter as;<br>HPF : OFF<br>LPF : 20 kHz<br>De- emphasis : OFF<br>Detector : (P–P)/2<br>• Transmitting | Top panel | Connect an FM deviation meter to the antenna connector through an attenuator. | ±2.00 to ±2.10 kHz |
| (NARROW) [MOD N L] | 2 | • Operating CH. : CH 8<br>• Transmitting | | | |
| (NARROW) [MOD N H] | 3 | • Operating CH. : CH 2<br>• Transmitting | | | |
| (WIDE) [MOD W C] | 4 | • Operating CH. : CH 5<br>• Transmitting | | | ±3.95 to ±4.05 kHz |
| (WIDE) [MOD W L] | 5 | • Operating CH. : CH 6<br>• Transmitting | | | |
| (WIDE) [MOD W H] | 6 | • Operating CH. : CH 7<br>• Transmitting | | | |

## SOFTWARE ADJUSTMENT (Continued)

Select an operation using [↑] / [↓] keys, then set specified value using [←] / [→] keys on the connected computer keyboard

| ADJUSTMENT | | ADJUSTMENT CONDITION | MEASUREMENT | | VALUE |
|---|---|---|---|---|---|
| | | | UNIT | OPERATION | |
| DIGITAL DEVIATION* [MOD Dig C] | 1 | • Preset [Dig Mode] : 7 | Top panel | Connect an FM deviation meter to the antenna connector through an attenuator. | ±2.83 to ±2.87 kHz |
| | 2 | • Operating CH. : CH 9<br>• Set an FM deviation meter as;<br>HPF : OFF<br>LPF : 20 kHz<br>De- emphasis : OFF<br>Detector : (P–P)/2<br>• Transmitting | | | |
| [MOD Dig L] | 3 | • Operating CH. : CH 10<br>• Transmitting | | | |
| [MOD Dig H] | 4 | • Operating CH. : CH 11<br>• Transmitting | | | |
| DIGITAL DEVIATION* [MOD Dig C] | 1 | • Preset [Dig Mode] : 6 | Top panel | Connect an FM deviation meter to the antenna connector through an attenuator. | ±0.91 to ±1.01 kHz (Verify) |
| | 2 | • Operating CH. CH 9<br>• Transmitting | | | |
| [MOD Dig L] | 3 | • Operating CH. CH 10<br>• Transmitting | | | |
| [MOD Dig H] | 4 | • Operating CH. CH 11<br>• Transmitting | | | |
| CTCSS/DTCS DEVIATION [CTCSS/DTCS] | 1 | • Operating CH. : CH 12<br>• No audio applied to the JIG cable.<br>• Set an FM deviation meter as;<br>HPF : OFF<br>LPF : 20 kHz<br>De- emphasis : OFF<br>Detector : (P–P)/2<br>• Transmitting | Top panel | Connect an FM deviation meter to the antenna connector through an attenuator. | ±0.68 to ±0.72 kHz |
| 2/5 TONE /DTMF DEVIATION [S.Tone] | 1 | • Operating CH. : CH 5<br>• No audio applied to the JIG cable.<br>• Set an FM deviation meter as;<br>HPF : OFF<br>LPF : 20 kHz<br>De- emphasis : OFF<br>Detector : (P–P)/2<br>• Push [P3] while transmitting. | Top panel | Connect an FM deviation meter to the antenna connector through an attenuator. | ±1.50 kHz |

*; [IC-F70DT/DS] only

## SOFTWARE ADJUSTMENT (continued)

• Select an operation using [↑] / [↓]keys, then set specified value using [←] / [→] keys on the connected computer keyboard

| ADJUSTMENT | | ADJUSTMENT CONDITION | MEASUREMENT | | VALUE |
|---|---|---|---|---|---|
| | | | UNIT | LOCATION | |
| RX SENSITIVITY [BPF C] | **NOTE:** Need to adjust "S-METER ADJUSTMENT" after "RX SENSITIVITY ADJUSTMENT" is adjusted. Otherwise, "S-METER ADJUSTMENT" will not be adjusted properly. | | | | |
| | 1 | • Operating CH : CH 5<br>• Connect the SSG to the antenna connector and set as;<br>Frequency : 155.000 MHz<br>Level : +20 dBμ† (–87 dBm)<br>Modulation : 1 kHz<br>Deviation : ±3.5 kHz<br>• Receiving | PC screen | Connect the SINAD meter with an 8 Ω load to the JIG cable. | Minimum distortion level |
| [BPF L] | 2 | • Operating CH : CH 6<br>Frequency : 136.000 MHz<br>• Receiving | | | |
| [BPF H] | 3 | • Operating CH : CH 7<br>Frequency : 174.000 MHz<br>• Receiving | | | |
| | | **CONVENIENT:**<br>The BPF C/L/H can be adjustment automatically.<br>①-1: Put the cursor on "BPF C/L/H ALL" and then push [ENTER] key.<br>①-2: The connected PC tunes BPF C/L/H to peak levels.<br>or<br>②-1: Put the cursor on the one of "BPF C/L/H" as desired.<br>②-2: Push [ENTER] key to start tuning.<br>②-3: Repeat ②-1 and ②-2 to perform additional BPF tuning. | | | |
| Digital RSSI* [Dig RSSI] | 1 | • Operating CH. : CH 9<br>• Connect the SSG to the antenna connector and set as;<br>Frequency : 155.000 MHz<br>Level : –20 dBμ† (–127 dBm)<br>Modulation : No modulation<br>• Receiving | Put the cursor on "Dig RSSI" and push the [ENTER] key to set the Digial RSSI level. | | |
| S-METER [RSSI] | 1 | • Operating CH. : CH 5<br>• Connect the SSG to the antenna connector and set as;<br>Frequency : 155.000 MHz<br>Level : +23 dBμ† (–84 dBm)<br>Modulation : 1 kHz<br>Deviation : ±3.5 kHz<br>• Receiving | Push the [ENTER] key on the connected computer's keyboard to set "S3" level. | | |
| | 2 | • Set the SSG as;<br>Level : –7dBμ† (–114 dBm)<br>• Receiving | Push the [ENTER] key on the connected computer's keyboard to set "S1" level. | | |
| SQUELCH LEVEL [SQL] | 1 | • Operating CH. : CH 5<br>• Connect the SSG to the antenna connector and set as;<br>Frequency : 155.000 MHz<br>Level : –14dBμ† (–121 dBm)<br>Modulation : 1 kHz<br>Deviation : ±3.5 kHz<br>• Receiving | Top panel | Connect speaker to the JIG cable. | Set the SQL level to close squelch. Then set SQL level at the point where the audio signals just appears. |

*; [IC-F70DT/DS] only

†; The output level of the standard signal generator (SSG) is indicated as the SSG's open circuit.

# SECTION 6 PARTS LIST

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| IC1 | 1130010100 | S.IC LMX2352TMX | B | 8.3/75.8 |
| IC2 | 1110005340 | S.IC NJM12902V-TE1 | T | 8/75.7 |
| IC3 | 1110003490 | S.IC TA31136FN | B | 14.6/57.6 |
| IC4 | 1190002050 | S.IC SPM5001 | B | 31.4/78.3 |
| IC5 | 1110002750 | S.IC TA75S01F (TE85R) | T | 24.8/101.4 |
| IC6 | 1130004200 | S.IC TC4S66F (TE85R) | B | 17.7/85.4 |
| IC12 | 1110005340 | S.IC NJM12902V-TE1 | T | 31.9/56.5 |
| IC300 | 1130009700 | S.IC LC73872M-TRM | B | 34.9/29.5 |
| IC301 | 1110006220 | S.IC AK2346-E2 | B | 15/39.8 |
| IC302 | 1130008230 | S.IC BU4053BCFV-E2 | B | 13.9/29.3 |
| IC303 | 1190001350 | S.IC M62364FP 600D | T | 20.2/71.7 |
| IC304 | 1110006260 | S.IC BD5242G-TR | B | 4.7/8.6 |
| IC305 | 1130008230 | S.IC BU4053BCFV-E2 | B | 33.4/66.4 |
| IC307 | 1140010190 | S.IC HD64F2268TF20 | B | 20.2/15 |
| IC308 | 1140009240 | S.IC HN58X24128FPI | B | 38.2/17.7 |
| IC310 | 1190001340 | S.IC M62334FP 600C | T | 32.5/84.4 |
| IC311 | 1180002270 | S.REG TK11250CMCL | B | 8.6/119.6 |
| IC312 | 1190001860 | S.IC EW-460-FT | B | 30.1/43.8 |
| IC313 | 1130006220 | S.IC TC4W53FU (TE12L) | T | 8.5/38.2 |
| | | | | |
| Q1 | 1590001940 | S.TR DTC144EE TL | B | 8.4/88.3 |
| Q2 | 1560000540 | S.FET 2SK880-Y (TE85R) | T | 24.2/80.5 |
| Q3 | 1530002850 | S.TR 2SC4116-BL (TE85R) | B | 9.1/96.8 |
| Q4 | 1530002920 | S.TR 2SC4226-T1 R25 | T | 19.3/95.8 |
| Q5 | 1530002920 | S.TR 2SC4226-T1 R25 | T | 25.2/93.8 |
| Q6 | 1530003310 | S.TR 2SC5107-O (TE85R) | T | 22.3/97 |
| Q7 | 1590001400 | S.TR XP1214 (TX) | B | 26.6/96 |
| Q8 | 1590001940 | S.TR DTC144EE TL | B | 18.4/93 |
| Q9 | 1530003310 | S.TR 2SC5107-O (TE85R) | B | 14.8/94.8 |
| Q10 | 1530003310 | S.TR 2SC5107-O (TE85R) | B | 24/99.4 |
| Q11 | 1530003420 | S.TR 2SC5110-O (TE85R) | B | 14/100.9 |
| Q12 | 1560001240 | S.FET RD01MUS1 | T | 14.9/109.8 |
| Q13 | 1560001230 | S.FET RD07MVS1 | T | 21/109.4 |
| Q14 | 1530002380 | S.TR 2SC4215-Y (TE85R) | B | 8.9/64.9 |
| Q15 | 1590002430 | S.TR DTA144EE TL | T | 21.3/64.7 |
| Q16 | 1590001940 | S.TR DTC144EE TL | T | 19.3/64.7 |
| Q17 | 1560000670 | S.FET 2SK1771 (TE85R) | B | 15.3/64.3 |
| Q18 | 1580000730 | S.FET 3SK293 (TE85L) | T | 34.3/96.3 |
| Q19 | 1560000840 | S.FET 2SK1829 (TE85R) | T | 33/93.5 |
| Q20 | 1530002920 | S.TR 2SC4226-T1 R25 | T | 19.3/92.1 |
| Q21 | 1590001400 | S.TR XP1214 (TX) | B | 18.6/95.3 |
| Q300 | 1590001940 | S.TR DTC144EE TL | T | 36.7/49.7 |
| Q302 | 1590001940 | S.TR DTC144EE TL | B | 7.2/5.9 |
| Q303 | 1530002380 | S.TR 2SC4215-Y (TE85R) | T | 19.4/49 |
| Q304 | 1510000920 | S.TR 2SA1577 T106 Q | B | 3.9/106 |
| Q305 | 1510000920 | S.TR 2SA1577 T106 Q | B | 7.3/101.7 |
| Q306 | 1510000920 | S.TR 2SA1577 T106 Q | B | 5.6/84.6 |
| Q307 | 1590001190 | S.TR XP6501-(TX) AB | B | 3.4/110.6 |
| Q308 | 1520000450 | S.TR 2SB1132 T100 Q | B | 4.1/119.1 |
| Q309 | 1590003320 | S.FET TPC6103 (TE85L) | B | 12.3/120.1 |
| Q310 | 1590001940 | S.TR DTC144EE TL | B | 8.9/9.6 |
| Q311 | 1590002430 | S.TR DTA144EE TL | B | 33.3/45.1 |
| | | | | |
| D1 | 1790001260 | S.DIO MA2S077-(TX) | B | 12.9/87.1 |
| D2 | 1790001260 | S.DIO MA2S077-(TX) | B | 12.9/88.9 |
| D3 | 1790001250 | S.DIO MA2S111-(TX) | B | 10/93.3 |
| D4 | 1750000770 | S.VCP HVC376BTRF | T | 10.9/89.3 |
| D5 | 1750000770 | S.VCP HVC376BTRF | T | 12.1/89.3 |
| D6 | 1750000770 | S.VCP HVC376BTRF | T | 27.2/85.4 |
| D7 | 1750000770 | S.VCP HVC376BTRF | T | 25/85.3 |
| D8 | 1720000470 | S.VCP 1SV239 (TPH3) | B | 26.3/90.2 |
| D9 | 1790001260 | S.DIO MA2S077-(TX) | B | 24.9/101.4 |
| D10 | 1790001260 | S.DIO MA2S077-(TX) | B | 19.6/101.3 |
| D11 | 1790001670 | S.DIO RB706F-40T106 | B | 30.5/104.3 |
| D12 | 1750000580 | S.DIO 1SV307 (TPH3) | B | 35.3/108.7 |
| D13 | 1750001070 | S.DIO DAN235ETL | B | 20/60 |
| D14 | 1750001070 | S.DIO DAN235ETL | B | 21.6/55.4 |
| D15 | 1750000710 | S.VCP HVC350BTRF | T | 40.1/89.5 |
| D16 | 1750000710 | S.VCP HVC350BTRF | T | 39.4/92.1 |
| D17 | 1790001250 | S.DIO MA2S111-(TX) | T | 35.1/89.7 |
| D18 | 1750000720 | S.VCP HVC375BTRF | T | 40.3/98.6 |
| D19 | 1750000720 | S.VCP HVC375BTRF | T | 39.1/104.1 |
| D20 | 1790001260 | S.DIO MA2S077-(TX) | T | 35.2/105.5 |
| D21 | 1790001240 | S.DIO MA2S728-(TX) | T | 35.2/109 |
| D22 | 1750000580 | S.DIO 1SV307 (TPH3) | B | 40.4/106.3 |
| D23 | 1790001250 | S.DIO MA2S111-(TX) | T | 28.1/102.4 |
| D24 | 1720000640 | S.VCP 1SV284 (TPH3) | T | 13.5/91.3 |
| D25 | 1750000720 | S.VCP HVC375BTRF | T | 21.9/88.8 |
| D26 | 1720000640 | S.VCP 1SV284 (TPH3) | T | 13.8/90.1 |
| D27 | 1720000640 | S.VCP 1SV284 (TPH3) | T | 17.4/89.3 |
| D28 | 1720000640 | S.VCP 1SV284 (TPH3) | T | 16.2/89.5 |
| D29 | 1750000770 | S.VCP HVC376BTRF | T | 13.3/85.5 |
| D30 | 1750000770 | S.VCP HVC376BTRF | T | 13.3/88 |

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| D31 | 1790001250 | S.DIO MA2S111-(TX) | T | 26.2/105.3 |
| D301 | 1160000050 | S.DIO DAP202U T106 | T | 33.6/26 |
| D302 | 1160000050 | S.DIO DAP202U T106 | B | 32.4/5.4 |
| D303 | 1160000050 | S.DIO DAP202U T106 | T | 39.7/27 |
| D304 | 1160000050 | S.DIO DAP202U T106 | T | 36.5/27.3 |
| D306 | 1730002320 | S.ZEN MA8051-M (TX) | B | 11.1/5.2 |
| D307 | 1790001260 | S.DIO MA2S077-(TX) | B | 9/24.5 |
| D308 | 1790001250 | S.DIO MA2S111-(TX) | B | 21.9/27.1 |
| D309 | 1790001250 | S.DIO MA2S111-(TX) | T | 37.8/29.3 |
| D310 | 1750000270 | S.DIO 1SS301 (TE85R) | B | 35.9/5 |
| D311 | 1750000270 | S.DIO 1SS301 (TE85R) | B | 11.3/7.5 |
| D312 | 1790001250 | S.DIO MA2S111-(TX) | B | 27.4/44.7 |
| D313 | 1160000050 | S.DIO DAP202U T106 | B | 23.3/3 |
| | | | | |
| FI1 | 2020001930 | S.CER CFWCA450KFFA-R0 | T | 21.5/57.1 |
| FI2 | 2020002120 | S.CER CFWCA450KGFA-R0 | B | 28.2/56.7 |
| FI3 | 2030000410 | S.MLH FL-380 MFT46.3P | B | 20.3/69.6 |
| | | | | |
| X1 | 6050012060 | S.XTL CR-796 (15.300 MHz) | B | 5.4/68.4 |
| X2 | 6070000190 | S.DCR CDBCB450KCAY24-R0 | T | 12.5/55.5 |
| X300 | 6050012100 | S.XTL CR-800 (3.579545 MHz) | B | 34.6/38.3 |
| X301 | 6050012090 | S.XTL CR-799 (3.6864 MHz) | B | 5.4/39.2 |
| X302 | 6050012110 | S.XTL CR-803 (19.6608 MHz) | B | 7.4/19.5 |
| | | | | |
| L1 | 6200004930 | S.COL MLF1608E 8R2K-T | B | 9.7/68.9 |
| L2 | 6200011250 | S.COL LLQ1608-A18NG | B | 11.5/85.9 |
| L3 | 6200007170 | S.COL MLF1608A 3R3K-T | T | 23.2/84.4 |
| L4 | 6200007170 | S.COL MLF1608A 3R3K-T | T | 10.9/86.7 |
| L6 | 6200008090 | S.COL LQW2BHN68NJ01L | T | 22.3/86.6 |
| L7 | 6200003640 | S.COL MLF1608E 100K-T | T | 12.7/92.5 |
| L8 | 6200003640 | S.COL MLF1608E 100K-T | T | 26.1/87.1 |
| L9 | 6200011110 | S.COL 0.40-2.00-9TL 80.2N | T | 12.1/95.7 |
| L10 | 6200007760 | S.COL LQW2BHN82NJ01L | T | 25.9/90.3 |
| L11 | 6200009180 | S.COL ELJRE R10J-F3 | T | 24.3/96.4 |
| L12 | 6200011240 | S.COL LLQ1608-A33NG | B | 12.4/94.7 |
| L13 | 6200011280 | S.COL C1608CB-R10G | B | 20.4/99.2 |
| L14 | 6200005740 | S.COL ELJRE 47NG-F | B | 13.1/102.9 |
| L15 | 6200003590 | S.COL EXCCL3225U1 | B | 15.9/117.1 |
| L16 | 6200005690 | S.COL ELJRE 18NG-F | T | 16.6/115.7 |
| L17 | 6200008210 | S.COL 0.45-1.5-5TL 23.2N | B | 21.2/117.7 |
| L18 | 6200009710 | S.COL 0.30-0.9-4TL 10.5N | B | 25.2/117.8 |
| L19 | 6200008490 | S.COL 0.30-0.9-3TR 7.5N | B | 30.7/117.5 |
| L20 | 6200008280 | S.COL 0.30-1.7-7TL 50N | B | 32.4/111 |
| L21 | 6200002860 | S.COL NL 252018T-4R7J | B | 33.3/106 |
| L22 | 6200009800 | S.COL 0.26-1.1-7TR 30N | B | 38.3/112.7 |
| L23 | 6200008580 | S.COL 0.30-1.4-6TL 32N | B | 36.8/117.2 |
| L24 | 6200003540 | S.COL MLF1608D R22K-T | B | 6.9/63.2 |
| L25 | 6200004480 | S.COL MLF1608D R82K-T | B | 7.8/61 |
| L26 | 6200002690 | S.COL MLF1608A 1R0M-T | B | 11.5/63.3 |
| L27 | 6200004660 | S.COL MLF1608A 1R8K-T | B | 20.2/64.6 |
| L29 | 6200004790 | S.COL MLF1608D R47K-T | B | 20.9/75.5 |
| L30 | 6130003000 | S.COL 617DB-1714=P3 | B | 26.1/79.2 |
| L31 | 6130003000 | S.COL 617DB-1714=P3 | B | 31.4/85.1 |
| L32 | 6200004780 | S.COL MLF1608A 1R5K-T | B | 12.8/63.3 |
| L33 | 6130003000 | S.COL 617DB-1714=P3 | B | 36.6/79.2 |
| L34 | 6200011260 | S.COL C1608CB-15NG | B | 30.3/93.5 |
| L35 | 6200011260 | S.COL C1608CB-15NG | B | 29.5/96.3 |
| L37 | 6200009920 | S.COL C2012C-R10G | B | 33.4/96.5 |
| L38 | 6200011050 | S.COL C2012C-R12G | B | 36.6/100 |
| L39 | 6200011050 | S.COL C2012C-R12G | B | 38.3/103 |
| L40 | 6200011150 | S.COL C1608CB-68NG | B | 36.5/85.6 |
| L41 | 6200010400 | S.COL ELJRE 39NJ-F | B | 36/105.8 |
| L42 | 6200008280 | S.COL 0.30-1.7-7TL 50N | B | 38.1/106.4 |
| L43 | 6200007170 | S.COL MLF1608A 3R3K-T | B | 15.1/91 |
| L44 | 6200007170 | S.COL MLF1608A 3R3K-T | B | 25.1/88 |
| L45 | 6200011130 | S.COL C1608CB-12NG | B | 39.6/82 |
| L46 | 6200004660 | S.COL MLF1608A 1R8K-T | B | 13.1/80.2 |
| L47 | 6200007170 | S.COL MLF1608A 3R3K-T | T | 12.1/86.7 |
| L48 | 6200007170 | S.COL MLF1608A 3R3K-T | B | 16.3/89 |
| L49 | 6200010100 | S.COL C2012C-33NG | B | 39.3/87.2 |
| L50 | 6200003640 | S.COL MLF1608E 100K-T | T | 14.5/87.6 |
| L51 | 6200011120 | S.COL 0.40-2.00-10TL 90.5N | T | 18.2/86.3 |
| L52 | 6200011150 | S.COL C1608CB-68NG | T | 36.5/87 |
| L53 | 6200011140 | S.COL C1608CB-39NG | T | 38.4/87.5 |
| L54 | 6200011150 | S.COL C1608CB-68NG | T | 36.5/89.7 |
| L55 | 6200010310 | S.COL C2012C-27NG | B | 37.1/91.7 |
| L56 | 6200011230 | S.COL LLQ1608-A22NG | B | 8.5/85 |
| L57 | 6200011230 | S.COL LLQ1608-A22NG | B | 8.5/82.4 |
| L58 | 6200011060 | S.COL C1608CB-18NG | B | 21.8/100.3 |
| L60 | 6200009890 | S.COL C2012C-82NG | T | 37.9/108.6 |
| L61 | 6200009920 | S.COL C2012C-R10G | B | 42.1/77.3 |
| L301 | 6200002860 | S.COL NL 252018T-4R7J | B | 25.7/28.8 |

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| L302 | 6200011250 | S.COL LLQ1608-A18NG | B | 12.9/92.7 |
| R1 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 5.8/71.2 |
| R2 | 7030005700 | S.RES ERJ2GEJ 274 X (270 kΩ) | T | 3.6/74.9 |
| R3 | 7030008310 | S.RES ERJ2GEJ 564 X (560 kΩ) | T | 1.6/73.6 |
| R4 | 7410001130 | S.ARY EXB28V102JX | B | 3.4/73.3 |
| R5 | 7030008310 | S.RES ERJ2GEJ 564 X (560 kΩ) | T | 3.7/73.2 |
| R6 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 9.7/70.3 |
| R7 | 7030005580 | S.RES ERJ2GEJ 560 X (56 Ω) | B | 9.9/81.7 |
| R8 | 7510001730 | S.TMR ERTJOEP 473J | B | 4.2/64 |
| R9 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 2.4/63.1 |
| R10 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 26.7/79.2 |
| R11 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 22.1/77.9 |
| R12 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 7.3/87 |
| R13 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 17.2/76.3 |
| R14 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 11.6/88.8 |
| R15 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 11.6/89.7 |
| R16 | 7030005030 | S.RES ERJ2GEJ 152 X (1.5 kΩ) | B | 14.6/78.8 |
| R17 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 14.2/81.1 |
| R18 | 7030005060 | S.RES ERJ2GEJ 333 X (33 kΩ) | B | 23.4/87.5 |
| R19 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 22/83.9 |
| R20 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 23.4/86.6 |
| R21 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 22.7/89.6 |
| R22 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 10.9/84.6 |
| R23 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 21.1/84.1 |
| R24 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | B | 9.5/95 |
| R25 | 7030008370 | S.RES ERJ2GEJ 561 X (560 Ω) | T | 24.3/78.6 |
| R26 | 7030011000 | S.RES RR0510P-392-D (3.9 kΩ) | T | 15.1/97.3 |
| R27 | 7030010040 | S.RES ERJ2GE-JPW | T | 17.2/96.2 |
| R28 | 7030011000 | S.RES RR0510P-392-D (3.9 kΩ) | T | 22.4/90.8 |
| R29 | 7030009320 | S.RES ERJ2GEJ 4R7 X (4.7 Ω) | T | 26.5/92 |
| R30 | 7030008340 | S.RES RR0510P-182-D (1.8 kΩ) | T | 17.2/95.3 |
| R31 | 7030008340 | S.RES RR0510P-182-D (1.8 kΩ) | T | 24.7/92 |
| R32 | 7030008370 | S.RES ERJ2GEJ 561 X (560 Ω) | T | 26.7/96.3 |
| R33 | 7030005000 | S.RES ERJ2GEJ 471 X (470 Ω) | T | 17.2/97.4 |
| R34 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 25.4/95.9 |
| R35 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 23.3/94.7 |
| R36 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 25.4/94.1 |
| R37 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 28.4/95.5 |
| R38 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | B | 14.8/96.6 |
| R39 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 12.1/96.8 |
| R40 | 7030009320 | S.RES ERJ2GEJ 4R7 X (4.7 Ω) | B | 24.4/96.3 |
| R41 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 23.5/97.5 |
| R42 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 20.5/97.5 |
| R43 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 28.9/99.8 |
| R44 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 28.5/98.6 |
| R45 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 22.1/102.5 |
| R46 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 19.4/102.4 |
| R47 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 17.8/102.1 |
| R48 | 7030005030 | S.RES ERJ2GEJ 152 X (1.5 kΩ) | B | 16.4/100.8 |
| R49 | 7030005530 | S.RES ERJ2GEJ 100 X (10 Ω) | B | 10.9/103.7 |
| R51 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | B | 12.2/101.4 |
| R52 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 11.9/100.1 |
| R53 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 16.4/104.2 |
| R54 | 7030005060 | S.RES ERJ2GEJ 333 X (33 kΩ) | T | 15.4/104.2 |
| R55 | 7030005590 | S.RES ERJ2GEJ 680 X (68 Ω) | T | 14.5/106.3 |
| R56 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 20.1/103.5 |
| R57 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 19/103.3 |
| R58 | 7030007250 | S.RES ERJ2GEJ 220 X (22 Ω) | T | 19/104.9 |
| R59 | 7030007570 | S.RES ERJ2GEJ 122 X (1.2 kΩ) | B | 6.1/64.3 |
| R60 | 7030007060 | S.RES ERJ2GEJ 684X (680 kΩ) | B | 7.1/65.4 |
| R62 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | T | 24.4/103.6 |
| R63 | 7030007340 | S.RES ERJ2GEJ 153 X (15 kΩ) | B | 21.4/58.5 |
| R64 | 7030007250 | S.RES ERJ2GEJ 220 X (22 Ω) | T | 17.5/65.4 |
| R65 | 7030003490 | S.RES ERJ3GEYJ 272 V (2.7 kΩ) | B | 31.4/108.1 |
| R66 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | B | 21.6/60 |
| R67 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 20.8/61.9 |
| R68 | 7030007300 | S.RES ERJ2GEJ 332 X (3.3 kΩ) | B | 21.1/52.5 |
| R69 | 7030009290 | S.RES ERJ2GEJ 562 X (5.6 kΩ) | B | 22/53.3 |
| R70 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 28.8/103.5 |
| R71 | 7030005600 | S.RES ERJ2GEJ 273 X (27 kΩ) | B | 20.7/57.2 |
| R72 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 14.9/54.2 |
| R73 | 7030005030 | S.RES ERJ2GEJ 152 X (1.5 kΩ) | B | 17.5/61 |
| R74 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | B | 19/55.4 |
| R75 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | B | 17.6/52.8 |
| R76 | 7030008410 | S.RES ERJ2GEJ 392 X (3.9 kΩ) | B | 33.5/53.3 |
| R77 | 7030005080 | S.RES ERJ2GEJ 823 X (82 kΩ) | B | 19.1/53.4 |
| R78 | 7030007350 | S.RES ERJ2GEJ 393 X (39 kΩ) | B | 17.6/51.9 |
| R79 | 7030005000 | S.RES ERJ2GEJ 471 X (470 Ω) | B | 11.1/54.1 |
| R80 | 7030010040 | S.RES ERJ2GE-JPW | B | 9.4/57.3 |
| R81 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 9.4/59 |
| R82 | 7030006610 | S.RES ERJ2GEJ 394 X (390 kΩ) | T | 33.2/35.8 |
| R83 | 7030007570 | S.RES ERJ2GEJ 122 X (1.2 kΩ) | T | 13.9/51 |
| R85 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 15.2/61.1 |
| R86 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 13.1/66.8 |
| R87 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | B | 15.8/66.8 |
| R88 | 7030005210 | S.RES ERJ2GEJ 822 X (8.2 kΩ) | B | 17.6/63.2 |
| R89 | 7030005530 | S.RES ERJ2GEJ 100 X (10 Ω) | B | 11.8/66.3 |
| R90 | 7030005310 | S.RES ERJ2GEJ 124 X (120 kΩ) | B | 24.5/90.1 |
| R91 | 7030003860 | S.RES ERJ3GE JPW V | B | 27/102.8 |
| R92 | 7030010130 | S.RES ERJ2GE 6R8 X (6.8 Ω) | B | 23.6/75.5 |
| R93 | 7030009270 | S.RES ERJ2GEJ 821 X (820 Ω) | B | 23.1/74.2 |

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| R94 | 7030009270 | S.RES ERJ2GEJ 821 X (820 Ω) | B | 24.1/74.2 |
| R95 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 27.6/75.8 |
| R96 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 34.9/76.2 |
| R97 | 7030009270 | S.RES ERJ2GEJ 821 X (820 Ω) | B | 31.2/89.9 |
| R98 | 7030010130 | S.RES ERJ2GE 6R8 X (6.8 Ω) | B | 30.2/91.3 |
| R99 | 7030009270 | S.RES ERJ2GEJ 821 X (820 Ω) | B | 31.4/91.7 |
| R100 | 7030010040 | S.RES ERJ2GE-JPW | B | 38/83.1 |
| R101 | 7030010090 | S.RES ERJ2GEJ 180 X (18 Ω) | T | 35/92.1 |
| R103 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 38/89.2 |
| R104 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 38/91 |
| R105 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 38.4/86 |
| R107 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 34.1/98.8 |
| R108 | 7030005530 | S.RES ERJ2GEJ 100 X (10 Ω) | T | 33.2/98.3 |
| R109 | 7030005710 | S.RES ERJ2GEJ 121 X (120 Ω) | T | 36.4/92.7 |
| R111 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 34.8/98.3 |
| R112 | 7030008300 | S.RES ERJ2GEJ 184 X (180 kΩ) | T | 36.4/96.9 |
| R113 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 34/100.1 |
| R114 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | T | 32.3/101 |
| R115 | 7030009290 | S.RES ERJ2GEJ 562 X (5.6 kΩ) | T | 33.7/91.6 |
| R116 | 7030005170 | S.RES ERJ2GEJ 474 X (470 kΩ) | T | 33.7/90.7 |
| R117 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | T | 32.3/91 |
| R118 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 37.7/99.6 |
| R119 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 37.7/103.2 |
| R120 | 7030005530 | S.RES ERJ2GEJ 100 X (10 Ω) | T | 22/102.3 |
| R121 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | T | 26.7/103.9 |
| R122 | 7030003340 | S.RES ERJ3GEYJ 151 V (150 Ω) | B | 33.2/102.2 |
| R123 | 7030005700 | S.RES ERJ2GEJ 274 X (270 kΩ) | T | 27.9/100.8 |
| R124 | 7030005070 | S.RES ERJ2GEJ 683 X (68 kΩ) | T | 29.1/100.4 |
| R125 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 27.6/103.9 |
| R126 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 27.9/106.3 |
| R127 | 7030003670 | S.RES ERJ3GEYJ 823 V (82 kΩ) | B | 36.5/119.2 |
| R128 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 37.7/100.5 |
| R129 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | B | 18.8/87.6 |
| R130 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | B | 27.6/85.5 |
| R131 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 12.1/84.6 |
| R132 | 7030011000 | S.RES RR0510P-392-D (3.9 kΩ) | T | 21.2/90.2 |
| R133 | 7030008340 | S.RES RR0510P-182-D (1.8 kΩ) | T | 17.5/91.9 |
| R134 | 7030010040 | S.RES ERJ2GE-JPW | T | 19/90.2 |
| R135 | 7030005000 | S.RES ERJ2GEJ 471 X (470 Ω) | T | 21.3/92.6 |
| R136 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 16.8/92.7 |
| R137 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 30.5/81.4 |
| R138 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 32.3/81.4 |
| R139 | 7030010040 | S.RES ERJ2GE-JPW | B | 34.3/88 |
| R140 | 7030004990 | S.RES ERJ2GEJ 221 X (220 Ω) | T | 24.4/104.5 |
| R141 | 7030003860 | S.RES ERJ3GE JPW V | B | 23.9/103.2 |
| R299 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 11.1/52.5 |
| R300 | 7030005080 | S.RES ERJ2GEJ 823 X (82 kΩ) | B | 24.4/39.3 |
| R301 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 24.4/38.4 |
| R302 | 7030007300 | S.RES ERJ2GEJ 332 X (3.3 kΩ) | B | 14.5/33.3 |
| R303 | 7030005160 | S.RES ERJ2GEJ 105 X (1 MΩ) | B | 34.6/33.8 |
| R304 | 7030005720 | S.RES ERJ2GEJ 563 X (56 kΩ) | T | 17.5/64 |
| R305 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 11.5/64.5 |
| R306 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | T | 15.4/61 |
| R307 | 7030005530 | S.RES ERJ2GEJ 100 X (10 Ω) | B | 36.4/33.8 |
| R308 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | B | 23/40.2 |
| R309 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 15.2/34.6 |
| R310 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | B | 21.7/39.8 |
| R311 | 7030005000 | S.RES ERJ2GEJ 471 X (470 Ω) | T | 4.2/78.8 |
| R312 | 7030006610 | S.RES ERJ2GEJ 394 X (390 kΩ) | B | 21.2/41.1 |
| R313 | 7030008010 | S.RES ERJ2GEJ 123 X (12 kΩ) | B | 21.2/42 |
| R314 | 7030005170 | S.RES ERJ2GEJ 474 X (470 kΩ) | T | 3.7/77.2 |
| R315 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 1.9/77.2 |
| R316 | 7030005060 | S.RES ERJ2GEJ 333 X (33 kΩ) | B | 23/41.1 |
| R317 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 25.2/36.2 |
| R318 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 32.9/38.2 |
| R319 | 7030005160 | S.RES ERJ2GEJ 105 X (1 MΩ) | B | 10/40.9 |
| R320 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | T | 12.8/77.1 |
| R321 | 7030005060 | S.RES ERJ2GEJ 333 X (33 kΩ) | B | 10/43.3 |
| R322 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | T | 12.9/78.9 |
| R323 | 7030009290 | S.RES ERJ2GEJ 562 X (5.6 kΩ) | T | 8.8/29.6 |
| R324 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | B | 13.1/45.7 |
| R325 | 7030005110 | S.RES ERJ2GEJ 224 X (220 kΩ) | B | 14/45.7 |
| R326 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 9.9/45.1 |
| R327 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | B | 20.8/31.4 |
| R328 | 7030005060 | S.RES ERJ2GEJ 333 X (33 kΩ) | B | 18.3/30.4 |
| R329 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | T | 12.9/79.8 |
| R330 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 11.9/45.3 |
| R331 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 9.7/38.9 |
| R332 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | T | 14.1/78.5 |
| R333 | 7030008270 | S.RES RR0510R-104-D (100 kΩ) | T | 13.2/73.1 |
| R334 | 7030008310 | S.RES ERJ2GEJ 564 X (560 kΩ) | T | 14.5/64.1 |
| R335 | 7030007610 | S.RES RR0510R-683-D (68 kΩ) | T | 12.8/75 |
| R336 | 7030008270 | S.RES RR0510R-104-D (100 kΩ) | T | 27.6/57.1 |
| R337 | 7030010040 | S.RES ERJ2GE-JPW | T | 21.7/34.8 |
| R338 | 7030005310 | S.RES ERJ2GEJ 124 X (120 kΩ) | T | 28.8/60.7 |
| R339 | 7030007610 | S.RES RR0510R-683-D (68 kΩ) | T | 27.6/58.8 |
| R340 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 14/3.7 |
| R342 | 7030005010 | S.RES ERJ2GEJ 681 X (680 Ω) | T | 25.7/76.6 |
| R344 | 7030005230 | S.RES ERJ2GEJ 334 X (330 kΩ) | T | 33/23.6 |
| R345 | 7030005230 | S.RES ERJ2GEJ 334 X (330 kΩ) | T | 31.8/23.8 |
| R346 | 7030005230 | S.RES ERJ2GEJ 334 X (330 kΩ) | T | 32.6/20 |
| R347 | 7030005160 | S.RES ERJ2GEJ 105 X (1 MΩ) | T | 30.7/15.3 |
| R348 | 7030005160 | S.RES ERJ2GEJ 105 X (1 MΩ) | T | 32.9/17.1 |

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

S.=Surface mount

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| R349 | 7030005160 | S.RES ERJ2GEJ 105 X (1 MΩ) | T | 32.5/15.8 |
| R350 | 7410001140 | S.ARY EXB28V104JX | T | 35/4.4 |
| R351 | 7030008410 | S.RES ERJ2GEJ 392 X (3.9 kΩ) | T | 26.8/67.6 |
| R352 | 7030005060 | S.RES ERJ2GEJ 333 X (33 kΩ) | T | 25.9/67.6 |
| R353 | 7030005600 | S.RES ERJ2GEJ 273 X (27 kΩ) | T | 25.5/66 |
| R354 | 7030005600 | S.RES ERJ2GEJ 273 X (27 kΩ) | T | 25.5/65.1 |
| R355 | 7030005700 | S.RES ERJ2GEJ 274 X (270 kΩ) | T | 28.3/53.4 |
| R356 | 7030005160 | S.RES ERJ2GEJ 105 X (1 MΩ) | B | 9.4/37.7 |
| R357 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 33.5/20 |
| R358 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 32.6/22.4 |
| R359 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 33.5/22.2 |
| R360 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | T | 36/51.8 |
| R361 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 36/53.4 |
| R362 | 7030005070 | S.RES ERJ2GEJ 683 X (68 kΩ) | T | 29.6/53 |
| R363 | 7030005070 | S.RES ERJ2GEJ 683 X (68 kΩ) | T | 30.3/52.1 |
| R364 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 33.3/52.7 |
| R365 | 7030005070 | S.RES ERJ2GEJ 683 X (68 kΩ) | T | 36.2/58.3 |
| R366 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 34.2/51.8 |
| R367 | 7030005070 | S.RES ERJ2GEJ 683 X (68 kΩ) | T | 31.3/61.3 |
| R368 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 32.9/51.4 |
| R371 | 7030005070 | S.RES ERJ2GEJ 683 X (68 kΩ) | T | 30/61.7 |
| R372 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 30.3/51.2 |
| R373 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | T | 30.8/49.9 |
| R374 | 7030008300 | S.RES ERJ2GEJ 184 X (180 kΩ) | B | 28.8/23.9 |
| R375 | 7030005720 | S.RES ERJ2GEJ 563 X (56 kΩ) | B | 27.9/23.9 |
| R376 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | B | 26.4/22.5 |
| R377 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 27.7/26.8 |
| R378 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 17.5/49.2 |
| R379 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 15.3/23.1 |
| R380 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 16.2/23.1 |
| R381 | 7030008010 | S.RES ERJ2GEJ 123 X (12 kΩ) | B | 7.6/24.5 |
| R382 | 7030007300 | S.RES ERJ2GEJ 332 X (3.3 kΩ) | T | 21.2/47.6 |
| R383 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 7.2/11 |
| R384 | 7030008010 | S.RES ERJ2GEJ 123 X (12 kΩ) | B | 11.6/26 |
| R385 | 7030008010 | S.RES ERJ2GEJ 123 X (12 kΩ) | B | 6.7/23.6 |
| R387 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 16.9/25.9 |
| R388 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 18.1/25.5 |
| R389 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 18/50.5 |
| R390 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | T | 15.2/76 |
| R391 | 7030005160 | S.RES ERJ2GEJ 105 X (1 MΩ) | B | 12.8/21.7 |
| R392 | 7030010040 | S.RES ERJ2GE-JPW | B | 28.2/69.1 |
| R393 | 7030005080 | S.RES ERJ2GEJ 823 X (82 kΩ) | B | 24.2/40.6 |
| R394 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 25.1/40.6 |
| R395 | 7030010040 | S.RES ERJ2GE-JPW | B | 32.8/20.5 |
| R396 | 7030005070 | S.RES ERJ2GEJ 683 X (68 kΩ) | T | 11.5/40.5 |
| R397 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | B | 19.2/31.2 |
| R399 | 7030009160 | S.RES ERJ2GEJ 181 X (180 Ω) | B | 13.6/20.4 |
| R400 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 9.2/50.4 |
| R401 | 7030009320 | S.RES ERJ2GEJ 4R7 X (4.7 Ω) | T | 14.8/73.1 |
| R402 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 22/24.8 |
| R403 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 25.6/24.1 |
| R404 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 24.4/23.6 |
| R405 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 11.8/10.3 |
| R406 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 26.5/24.1 |
| R407 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 18.4/24.3 |
| R408 | 7410001130 | S.ARY EXB28V102JX | B | 14.9/7.8 |
| R409 | 7410001130 | S.ARY EXB28V102JX | B | 28.1/20.6 |
| R410 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 14/5.5 |
| R411 | 7410001130 | S.ARY EXB28V102JX | B | 29.7/18.6 |
| R412 | 7410001130 | S.ARY EXB28V102JX | B | 16.9/5.8 |
| R413 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 30.6/6.6 |
| R414 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 17.9/10.9 |
| R415 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 16.1/10.9 |
| R416 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 32.8/19.3 |
| R417 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 31.6/19.3 |
| R418 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 28.1/3.2 |
| R419 | 7410001140 | S.ARY EXB28V104JX | T | 28.2/9.8 |
| R420 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 1.9/106.1 |
| R421 | 7410001130 | S.ARY EXB28V102JX | B | 22.5/5.1 |
| R422 | 7410001130 | S.ARY EXB28V102JX | B | 27/7.8 |
| R424 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 2.7/107.9 |
| R425 | 7410001130 | S.ARY EXB28V102JX | B | 25/6.2 |
| R426 | 7410001130 | S.ARY EXB28V102JX | B | 28.6/9.9 |
| R427 | 7410001130 | S.ARY EXB28V102JX | B | 30.5/12.3 |
| R428 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 6.1/98.9 |
| R429 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 7/99.8 |
| R430 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 2.8/82 |
| R431 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 4/82.4 |
| R432 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 29.4/79.5 |
| R433 | 7030005000 | S.RES ERJ2GEJ 471 X (470 Ω) | T | 31.2/78.5 |
| R434 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | B | 2.7/108.8 |
| R435 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 6.4/116.9 |
| R436 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 4.3/122.2 |
| R437 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 36.5/3.3 |
| R438 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 36.9/2 |
| R439 | 7030005700 | S.RES ERJ2GEJ 274 X (270 kΩ) | B | 15.7/120.9 |
| R440 | 7030010080 | S.RES ERJ2RHD 104 X (100 kΩ) | B | 14.3/121.8 |
| R441 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 10.8/5.4 |
| R442 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 6.9/7.9 |
| R443 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 4.2/10.8 |
| R444 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 18.1/3.7 |
| R445 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 16.4/3.7 |
| R446 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 11.5/9.4 |

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| R447 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 21.9/29.2 |
| R448 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 30.1/25.1 |
| R449 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 31.4/23.6 |
| R450 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 31.4/22 |
| R451 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 22.8/26.6 |
| R452 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | T | 22.8/25.7 |
| R453 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | T | 22.8/24.8 |
| R454 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 22.3/23.5 |
| R455 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 23.6/23.9 |
| R456 | 7030005060 | S.RES ERJ2GEJ 333 X (33 kΩ) | B | 19.7/3 |
| R501 | 7030010040 | S.RES ERJ2GE-JPW | T | 31.1/19.2 |
| R503 | 7030010040 | S.RES ERJ2GE-JPW | T | 33.1/5.1 |
| R504 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 27.4/46.4 |
| R505 | 7030005170 | S.RES ERJ2GEJ 474 X (470 kΩ) | B | 25.2/42.8 |
| R506 | 7030010040 | S.RES ERJ2GE-JPW | T | 9.7/34.8 |
| R507 | 7030005170 | S.RES ERJ2GEJ 474 X (470 kΩ) | B | 20.3/40.2 |
| R508 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | T | 12/72.6 |
| | | | | |
| C1 | 4030017330 | S.CER ECJ0EF1C104Z | B | 2.4/71 |
| C2 | 4030017420 | S.CER ECJ0EC1H470J | B | 1.4/72.9 |
| C3 | 4030017420 | S.CER ECJ0EC1H470J | B | 1.4/73.8 |
| C4 | 4030017350 | S.CER ECJ0EC1H020B | B | 10.6/70.3 |
| C5 | 4030017420 | S.CER ECJ0EC1H470J | B | 3/75.3 |
| C6 | 4030017460 | S.CER ECJ0EB1E102K | B | 12.5/82.5 |
| C7 | 4030017420 | S.CER ECJ0EC1H470J | T | 2.8/73.2 |
| C8 | 4030017390 | S.CER ECJ0EC1H180J | B | 8.8/70.3 |
| C9 | 4030017460 | S.CER ECJ0EB1E102K | B | 11.5/71.1 |
| C10 | 4030017460 | S.CER ECJ0EB1E102K | B | 4/77.3 |
| C11 | 4030016930 | S.CER ECJ0EB1A104K | B | 2.6/65.9 |
| C12 | 4030017600 | S.CER ECJ0EC1H080C | B | 9.9/82.6 |
| C13 | 4030017460 | S.CER ECJ0EB1E102K | B | 12.6/75 |
| C14 | 4030017460 | S.CER ECJ0EB1E102K | B | 12.4/71.1 |
| C15 | 4030017640 | S.CER ECJ0EC1H150J | B | 9.9/84.1 |
| C16 | 4030017460 | S.CER ECJ0EB1E102K | T | 42.8/76.4 |
| C17 | 4030016790 | S.CER ECJ0EB1C103K | B | 14.4/77.5 |
| C18 | 4030017460 | S.CER ECJ0EB1E102K | B | 11.1/82.2 |
| C19 | 4030016930 | S.CER ECJ0EB1A104K | B | 2.4/64 |
| C20 | 4030017570 | S.CER ECJ0EC1H040B | B | 9.5/87 |
| C21 | 4030017460 | S.CER ECJ0EB1E102K | T | 23/77.9 |
| C22 | 4030017360 | S.CER ECJ0EC1H030B | B | 10.8/87 |
| C23 | 4030017460 | S.CER ECJ0EB1E102K | T | 26.1/81.1 |
| C24 | 4550007000 | S.TAN ECST1VY105R | B | 15.5/74.4 |
| C25 | 4030017600 | S.CER ECJ0EC1H080C | B | 10.8/87.9 |
| C26 | 4030017600 | S.CER ECJ0EC1H080C | B | 9.6/85.3 |
| C27 | 4030017360 | S.CER ECJ0EC1H030B | B | 10.4/89.2 |
| C28 | 4030017600 | S.CER ECJ0EC1H080C | B | 11.6/90.6 |
| C29 | 4030016790 | S.CER ECJ0EB1C103K | B | 14.7/82.5 |
| C30 | 4030017460 | S.CER ECJ0EB1E102K | B | 23.4/85.7 |
| C31 | 4030016790 | S.CER ECJ0EB1C103K | B | 14.7/83.4 |
| C32 | 4030017360 | S.CER ECJ0EC1H030B | B | 11.6/91.6 |
| C33 | 4030017770 | S.CER ECJ0EB1E332K | B | 21.1/83.9 |
| C34 | 4030016930 | S.CER ECJ0EB1A104K | B | 23.4/88.4 |
| C35 | 4030017490 | S.CER C1608 JB 1A 105K-T | B | 22/86.1 |
| C36 | 4030017720 | S.CER ECJ0EB1H331K | B | 24.5/91 |
| C37 | 4030017570 | S.CER ECJ0EC1H040B | T | 24.1/87.5 |
| C39 | 4030017380 | S.CER ECJ0EC1H050B | T | 25/87.5 |
| C40 | 4030016790 | S.CER ECJ0EB1C103K | B | 10.8/95.9 |
| C42 | 4030017360 | S.CER ECJ0EC1H030B | T | 26.1/84.9 |
| C43 | 4030017360 | S.CER ECJ0EC1H030B | T | 23.8/85.9 |
| C44 | 4550006760 | S.TAN TEESVB21A336M8R | B | 6.4/93.2 |
| C45 | 4030017420 | S.CER ECJ0EC1H470J | T | 10.9/92.2 |
| C46 | 4030017440 | S.CER ECJ0EC1H221J | T | 27.2/87.6 |
| C47 | 4030017360 | S.CER ECJ0EC1H030B | T | 14.7/94.8 |
| C48 | 4030017340 | S.CER ECJ0EC1H010B | T | 26.1/88.8 |
| C49 | 4030017340 | S.CER ECJ0EC1H010B | T | 22.4/89.9 |
| C50 | 4030017640 | S.CER ECJ0EC1H150J | T | 11.3/91 |
| C52 | 4030017400 | S.CER ECJ0EC1H220J | T | 24.5/88.8 |
| C54 | 4030017660 | S.CER ECJ0EC1H330J | T | 14.7/96 |
| C55 | 4030017510 | S.CER ECJ0EC1H680J | T | 23.8/90.5 |
| C56 | 4030017660 | S.CER ECJ0EC1H330J | T | 16/95.6 |
| C57 | 4030017660 | S.CER ECJ0EC1H330J | T | 16/97.3 |
| C58 | 4030017390 | S.CER ECJ0EC1H180J | T | 27.1/93.3 |
| C59 | 4030017660 | S.CER ECJ0EC1H330J | T | 26.8/95.4 |
| C60 | 4030016790 | S.CER ECJ0EB1C103K | T | 18/94.4 |
| C61 | 4030017460 | S.CER ECJ0EB1E102K | T | 23.3/92.9 |
| C62 | 4030017460 | S.CER ECJ0EB1E102K | T | 18/93.5 |
| C63 | 4030017360 | S.CER ECJ0EC1H030B | B | 11.2/94.6 |
| C64 | 4030016930 | S.CER ECJ0EB1A104K | B | 23.2/93.9 |
| C65 | 4030017540 | S.CER ECJ0EC1HR75B | T | 19.8/97.7 |
| C66 | 4030017530 | S.CER ECJ0EC1H0R5B | T | 25.9/97.2 |
| C67 | 4030017460 | S.CER ECJ0EB1E102K | T | 21.9/95.2 |
| C68 | 4030017730 | S.CER ECJ0EB1E471K | B | 24.1/93.9 |
| C69 | 4030017460 | S.CER ECJ0EB1E102K | B | 13.4/96.2 |
| C70 | 4030017620 | S.CER ECJ0EC1H100C | B | 21.5/95.2 |
| C71 | 4030017460 | S.CER ECJ0EB1E102K | B | 16.7/95.5 |
| C72 | 4030017460 | S.CER ECJ0EB1E102K | B | 19.2/98.6 |
| C73 | 4030017460 | S.CER ECJ0EB1E102K | B | 27.2/94.1 |
| C74 | 4030017380 | S.CER ECJ0EC1H050B | B | 11.2/92.8 |
| C75 | 4030017590 | S.CER ECJ0EC1H070C | B | 23.4/95.2 |
| C76 | 4030017460 | S.CER ECJ0EB1E102K | B | 22.3/98 |
| C77 | 4030017390 | S.CER ECJ0EC1H180J | B | 29.4/98.6 |
| C78 | 4030017460 | S.CER ECJ0EB1E102K | B | 27.6/99.4 |

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| C79 | 4030017380 | S.CER ECJ0EC1H050B | B | 23/101.3 |
| C80 | 4030016790 | S.CER ECJ0EB1C103K | B | 25/103.7 |
| C81 | 4030017460 | S.CER ECJ0EB1E102K | B | 19.4/103.3 |
| C82 | 4030017640 | S.CER ECJ0EC1H150J | B | 16.4/101.7 |
| C83 | 4030017420 | S.CER ECJ0EC1H470J | B | 9.6/101.6 |
| C84 | 4030017460 | S.CER ECJ0EB1E102K | B | 16.2/103.5 |
| C85 | 4030017460 | S.CER ECJ0EB1E102K | B | 10.9/102.8 |
| C86 | 4030017460 | S.CER ECJ0EB1E102K | B | 11.9/99.2 |
| C87 | 4030017430 | S.CER ECJ0EC1H101J | T | 13.5/106.3 |
| C88 | 4030017420 | S.CER ECJ0EC1H470J | B | 10.9/101.9 |
| C89 | 4030017460 | S.CER ECJ0EB1E102K | B | 11/115.7 |
| C90 | 4030017420 | S.CER ECJ0EC1H470J | T | 18.1/103.3 |
| C91 | 4030017460 | S.CER ECJ0EB1E102K | T | 15.5/115.8 |
| C92 | 4030016790 | S.CER ECJ0EB1C103K | T | 16.4/106.3 |
| C93 | 4030017460 | S.CER ECJ0EB1E102K | T | 15.4/106.3 |
| C94 | 4030017650 | S.CER ECJ0EC1H270J | T | 16.3/113.5 |
| C95 | 4030017490 | S.CER C1608 JB 1A 105K-T | T | 20.5/115.7 |
| C96 | 4030017430 | S.CER ECJ0EC1H101J | T | 18.1/113.5 |
| C97 | 4030017460 | S.CER ECJ0EB1E102K | T | 21.1/103.5 |
| C98 | 4030017730 | S.CER ECJ0EB1E471K | T | 18.1/104.9 |
| C99 | 4030017460 | S.CER ECJ0EB1E102K | B | 18.6/115.3 |
| C100 | 4030017460 | S.CER ECJ0EB1E102K | T | 20.6/104.8 |
| C101 | 4550006250 | S.TAN TEESVA 1A 106M8L | T | 17.8/101.5 |
| C102 | 4030007110 | S.CER C1608 CH 1H 680J-T | B | 27.4/117.8 |
| C103 | 4030007100 | S.CER C1608 CH 1H 560J-T | B | 28.8/117.8 |
| C104 | 4030017620 | S.CER ECJ0EC1H100C | B | 9.2/67.3 |
| C105 | 4030017460 | S.CER ECJ0EB1E102K | T | 23.1/104 |
| C106 | 4030007040 | S.CER C1608 CH 1H 180J-T | B | 28.1/115.9 |
| C108 | 4030017460 | S.CER ECJ0EB1E102K | B | 31/113.8 |
| C109 | 4030016790 | S.CER ECJ0EB1C103K | B | 4.7/65.4 |
| C110 | 4030017530 | S.CER ECJ0EC1H0R5B | B | 30.9/106.3 |
| C111 | 4030017460 | S.CER ECJ0EB1E102K | T | 21.5/101.1 |
| C112 | 4030017500 | S.CER ECJ0EC1H560J | B | 6.8/62.1 |
| C113 | 4030017460 | S.CER ECJ0EB1E102K | B | 28.4/103.4 |
| C114 | 4030007010 | S.CER C1608 CH 1H 100D-T | B | 30.1/108.1 |
| C115 | 4030016930 | S.CER ECJ0EB1A104K | T | 22.6/101.1 |
| C116 | 4030017460 | S.CER ECJ0EB1E102K | B | 32.1/102.6 |
| C117 | 4030017570 | S.CER ECJ0EC1H040B | B | 9.2/63 |
| C118 | 4030016930 | S.CER ECJ0EB1A104K | B | 5.6/65.5 |
| C119 | 4030017460 | S.CER ECJ0EB1E102K | B | 32.6/103.9 |
| C120 | 4030016790 | S.CER ECJ0EB1C103K | B | 5.6/61.7 |
| C121 | 4030007040 | S.CER C1608 CH 1H 180J-T | B | 34.1/113.1 |
| C122 | 4030017460 | S.CER ECJ0EB1E102K | B | 34.8/110.5 |
| C123 | 4030016930 | S.CER ECJ0EB1A104K | T | 25.8/103.9 |
| C124 | 4030016930 | S.CER ECJ0EB1A104K | T | 27/100.8 |
| C125 | 4030017590 | S.CER ECJ0EC1H070C | B | 8.4/62.1 |
| C126 | 4030017460 | S.CER ECJ0EB1E102K | B | 37.6/109.7 |
| C127 | 4030016930 | S.CER ECJ0EB1A104K | B | 19.5/62 |
| C128 | 4030016930 | S.CER ECJ0EB1A104K | B | 22.5/60 |
| C129 | 4030017360 | S.CER ECJ0EC1H030B | B | 9.6/61.7 |
| C130 | 4030016930 | S.CER ECJ0EB1A104K | B | 20.6/53.8 |
| C131 | 4030016930 | S.CER ECJ0EB1A104K | B | 22.9/53.3 |
| C132 | 4030016930 | S.CER ECJ0EB1A104K | B | 22.1/62.3 |
| C133 | 4030016930 | S.CER ECJ0EB1A104K | B | 19.6/58.5 |
| C134 | 4030016930 | S.CER ECJ0EB1A104K | B | 22.9/61.4 |
| C135 | 4030016930 | S.CER ECJ0EB1A104K | B | 19.4/56.7 |
| C136 | 4030016930 | S.CER ECJ0EB1A104K | B | 17.3/54.1 |
| C137 | 4030017690 | S.CER ECJ0EC1H121J | B | 19.9/55.4 |
| C138 | 4030017690 | S.CER ECJ0EC1H121J | B | 18.2/54.1 |
| C139 | 4030017430 | S.CER ECJ0EC1H101J | B | 18.9/51.5 |
| C140 | 4030017460 | S.CER ECJ0EB1E102K | B | 19.4/57.6 |
| C141 | 4030017460 | S.CER ECJ0EB1E102K | B | 9.7/53.6 |
| C142 | 4030017420 | S.CER ECJ0EC1H470J | B | 9.7/52.5 |
| C143 | 4550006050 | S.TAN TEESVA 0J 106M8L | B | 14.2/52.3 |
| C144 | 4030017460 | S.CER ECJ0EB1E102K | B | 10.3/59 |
| C145 | 4030016790 | S.CER ECJ0EB1C103K | B | 11.5/61.1 |
| C146 | 4030017430 | S.CER ECJ0EC1H101J | B | 10.2/55.6 |
| C147 | 4030017460 | S.CER ECJ0EB1E102K | B | 8.5/58.2 |
| C148 | 4030016790 | S.CER ECJ0EB1C103K | B | 15.2/62 |
| C149 | 4030016790 | S.CER ECJ0EB1C103K | B | 18/64.5 |
| C150 | 4030017460 | S.CER ECJ0EB1E102K | B | 14.9/66.8 |
| C151 | 4030016790 | S.CER ECJ0EB1C103K | B | 14/66.8 |
| C152 | 4030016930 | S.CER ECJ0EB1A104K | B | 22.4/52.1 |
| C153 | 4030017400 | S.CER ECJ0EC1H220J | B | 24.2/68.7 |
| C154 | 4030017600 | S.CER ECJ0EC1H080C | B | 40.2/83.6 |
| C155 | 4030017580 | S.CER ECJ0EC1H060C | B | 20.4/74.2 |
| C156 | 4030016790 | S.CER ECJ0EB1C103K | B | 23.6/76.4 |
| C157 | 4030016790 | S.CER ECJ0EB1C103K | B | 11.4/67.6 |
| C158 | 4030016790 | S.CER ECJ0EB1C103K | B | 22.3/79.8 |
| C159 | 4030016790 | S.CER ECJ0EB1C103K | B | 28.5/75.8 |
| C161 | 4030017460 | S.CER ECJ0EB1E102K | B | 29.9/89.4 |
| C162 | 4030016790 | S.CER ECJ0EB1C103K | B | 8.1/59.5 |
| C163 | 4030017570 | S.CER ECJ0EC1H040B | B | 23/65.3 |
| C164 | 4030016790 | S.CER ECJ0EB1C103K | B | 37.2/82.2 |
| C165 | 4030017580 | S.CER ECJ0EC1H060C | B | 31.7/92.6 |
| C166 | 4030017460 | S.CER ECJ0EB1E102K | B | 40.5/78.2 |
| C167 | 4030017630 | S.CER ECJ0EC1H120J | B | 31/95.2 |
| C168 | 4030017460 | S.CER ECJ0EB1E102K | B | 36.8/83.5 |
| C170 | 4030017580 | S.CER ECJ0EC1H060C | B | 26.7/99.9 |
| C171 | 4030017580 | S.CER ECJ0EC1H060C | T | 40.2/88.4 |
| C172 | 4030017460 | S.CER ECJ0EB1E102K | T | 38/90.1 |
| C173 | 4030017420 | S.CER ECJ0EC1H470J | B | 40.1/88.8 |
| C174 | 4030017580 | S.CER ECJ0EC1H060C | T | 39.7/91 |

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| C175 | 4030017490 | S.CER C1608 JB 1A 105K-T | B | 35.2/96.2 |
| C176 | 4030017420 | S.CER ECJ0EC1H470J | B | 39/91.8 |
| C177 | 4030017460 | S.CER ECJ0EB1E102K | T | 39.3/86 |
| C178 | 4030017460 | S.CER ECJ0EB1E102K | B | 35.3/97.9 |
| C179 | 4030017460 | S.CER ECJ0EB1E102K | T | 35/93.7 |
| C180 | 4030017460 | S.CER ECJ0EB1E102K | T | 36.4/93.6 |
| C181 | 4030017420 | S.CER ECJ0EC1H470J | T | 36.4/94.5 |
| C182 | 4030017460 | S.CER ECJ0EB1E102K | B | 33.8/100 |
| C184 | 4030016930 | S.CER ECJ0EB1A104K | T | 32.3/99.2 |
| C185 | 4030016930 | S.CER ECJ0EB1A104K | T | 34/101 |
| C186 | 4030017460 | S.CER ECJ0EB1E102K | T | 36.1/99 |
| C187 | 4030016930 | S.CER ECJ0EB1A104K | T | 34/99.2 |
| C188 | 4030017460 | S.CER ECJ0EB1E102K | T | 32.3/100.1 |
| C189 | 4030017380 | S.CER ECJ0EC1H050B | T | 36.4/97.8 |
| C190 | 4030016930 | S.CER ECJ0EB1A104K | T | 33.7/89.8 |
| C191 | 4030017380 | S.CER ECJ0EC1H050B | T | 40.5/99.9 |
| C192 | 4030017460 | S.CER ECJ0EB1E102K | T | 37.7/102.3 |
| C193 | 4030017630 | S.CER ECJ0EC1H120J | T | 36.2/100.6 |
| C194 | 4030017380 | S.CER ECJ0EC1H050B | T | 40.5/104.2 |
| C195 | 4030017460 | S.CER ECJ0EB1E102K | T | 39.7/101.5 |
| C196 | 4030017650 | S.CER ECJ0EC1H270J | T | 37.7/101.4 |
| C197 | 4030017630 | S.CER ECJ0EC1H120J | T | 36.2/102.2 |
| C198 | 4030017660 | S.CER ECJ0EC1H330J | T | 36.3/105.4 |
| C199 | 4030017380 | S.CER ECJ0EC1H050B | B | 34.3/103.5 |
| C200 | 4030017650 | S.CER ECJ0EC1H270J | T | 36.3/107.8 |
| C201 | 4030017580 | S.CER ECJ0EC1H060C | B | 35.2/103.8 |
| C202 | 4030007020 | S.CER C1608 CH 1H 120J-T | B | 39.3/109 |
| C203 | 4030017460 | S.CER ECJ0EB1E102K | T | 29.1/101.3 |
| C204 | 4030007020 | S.CER C1608 CH 1H 120J-T | B | 39.3/110.4 |
| C205 | 4030011530 | S.CER C1608 CH 1H 110J-T | B | 36.4/112.4 |
| C206 | 4030007030 | S.CER C1608 CH 1H 150J-T | B | 39.3/117.2 |
| C207 | 4030006990 | S.CER C1608 CH 1H 080D-T | B | 37/115.2 |
| C208 | 4030017460 | S.CER ECJ0EB1E102K | T | 28.3/105.1 |
| C209 | 4030006940 | S.CER C1608 CH 1H 030C-T | B | 36.5/120.5 |
| C210 | 4030017460 | S.CER ECJ0EB1E102K | T | 30/102.7 |
| C211 | 4030017460 | S.CER ECJ0EB1E102K | B | 14.8/89 |
| C212 | 4030016930 | S.CER ECJ0EB1A104K | B | 14.8/89.9 |
| C213 | 4030017460 | S.CER ECJ0EB1E102K | B | 26.2/86.7 |
| C214 | 4030016930 | S.CER ECJ0EB1A104K | B | 27.1/86.7 |
| C215 | 4030017330 | S.CER ECJ0EF1C104Z | B | 13.5/77.5 |
| C216 | 4030017490 | S.CER C1608 JB 1A 105K-T | B | 11.2/80.6 |
| C217 | 4030017460 | S.CER ECJ0EB1E102K | B | 12.6/77.5 |
| C218 | 4030017330 | S.CER ECJ0EF1C104Z | B | 3.1/77.3 |
| C219 | 4030017490 | S.CER C1608 JB 1A 105K-T | B | 3.1/78.7 |
| C222 | 4030017640 | S.CER ECJ0EC1H150J | T | 14.6/85.9 |
| C223 | 4030017420 | S.CER ECJ0EC1H470J | T | 14.6/85 |
| C224 | 4550006480 | S.TAN TEESVA 1C 475M8L | B | 19.4/89.5 |
| C225 | 4030017590 | S.CER ECJ0EC1H070C | T | 18.5/88.9 |
| C226 | 4030017660 | S.CER ECJ0EC1H330J | T | 19.4/88.9 |
| C227 | 4030017660 | S.CER ECJ0EC1H330J | T | 20.3/89.8 |
| C228 | 4030017660 | S.CER ECJ0EC1H330J | T | 21.3/91.7 |
| C231 | 4030017540 | S.CER ECJ0EC1HR75B | T | 20.7/93.9 |
| C232 | 4030017530 | S.CER ECJ0EC1H0R5B | T | 40.5/105.1 |
| C233 | 4030017530 | S.CER ECJ0EC1H0R5B | T | 39.6/99.9 |
| C234 | 4030017460 | S.CER ECJ0EB1E102K | T | 36.5/106.6 |
| C235 | 4030017630 | S.CER ECJ0EC1H120J | T | 39.8/108.9 |
| C236 | 4030017690 | S.CER ECJ0EC1H121J | T | 39.8/109.8 |
| C237 | 4030017690 | S.CER ECJ0EC1H121J | B | 40.5/75.7 |
| C300 | 4030017420 | S.CER ECJ0EC1H470J | B | 21.8/35.7 |
| C301 | 4030017420 | S.CER ECJ0EC1H470J | B | 9.4/36.1 |
| C302 | 4030017640 | S.CER ECJ0EC1H150J | B | 34.6/34.7 |
| C303 | 4030017420 | S.CER ECJ0EC1H470J | B | 21.7/36.6 |
| C304 | 4030017420 | S.CER ECJ0EC1H470J | B | 9.6/34.9 |
| C305 | 4030017460 | S.CER ECJ0EB1E102K | T | 5.4/79.3 |
| C306 | 4030017420 | S.CER ECJ0EC1H470J | B | 21.8/37.5 |
| C307 | 4030016970 | S.CER ECJ0EB1C223K | B | 16.1/34.6 |
| C308 | 4030016930 | S.CER ECJ0EB1A104K | B | 13.7/34.6 |
| C309 | 4030017390 | S.CER ECJ0EC1H180J | B | 36.4/34.7 |
| C310 | 4030017420 | S.CER ECJ0EC1H470J | B | 21.7/38.4 |
| C311 | 4030016930 | S.CER ECJ0EB1A104K | B | 30.6/33.6 |
| C312 | 4030017460 | S.CER ECJ0EB1E102K | B | 20.3/43.8 |
| C313 | 4550000460 | S.TAN TEESVA 1C 105M8L | B | 23.7/44.5 |
| C314 | 4030017420 | S.CER ECJ0EC1H470J | B | 19.9/41.7 |
| C315 | 4030018860 | S.CER ECJ0EB0J105K | T | 16.8/63.1 |
| C316 | 4030018860 | S.CER ECJ0EB0J105K | T | 13.2/64.5 |
| C317 | 4030018860 | S.CER ECJ0EB0J105K | T | 15.4/62.7 |
| C318 | 4550000460 | S.TAN TEESVA 1C 105M8L | B | 17.7/45 |
| C319 | 4030017730 | S.CER ECJ0EB1E471K | T | 2.8/77.2 |
| C320 | 4030016930 | S.CER ECJ0EB1A104K | B | 38.1/24.4 |
| C321 | 4550005980 | S.TAN TEESVA 1A 475M8L | T | 2.6/80.6 |
| C322 | 4030017910 | S.CER ECJ0EB1H152K | B | 22.6/42.3 |
| C323 | 4030017680 | S.CER ECJ0EC1H820J | B | 13.3/44.5 |
| C324 | 4030018860 | S.CER ECJ0EB0J105K | T | 7.9/29.6 |
| C325 | 4030017400 | S.CER ECJ0EC1H220J | B | 8.5/37 |
| C326 | 4030016930 | S.CER ECJ0EB1A104K | T | 12.8/78 |
| C327 | 4030016930 | S.CER ECJ0EB1A104K | B | 23.5/42.3 |
| C328 | 4030017400 | S.CER ECJ0EC1H220J | B | 8.5/39.2 |
| C329 | 4550006350 | S.TAN TEESVB2 1A 226M8L | B | 6.4/30.4 |
| C330 | 4030016790 | S.CER ECJ0EB1C103K | T | 12.8/76.2 |
| C331 | 4030018820 | S.CER ECJ0EB1H561K | T | 11.5/39.6 |
| C332 | 4030016930 | S.CER ECJ0EB1A104K | B | 10.9/32.5 |
| C333 | 4030016930 | S.CER ECJ0EB1A104K | B | 9/44.2 |
| C334 | 4030017460 | S.CER ECJ0EB1E102K | B | 10.5/34 |

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

S.=Surface mount

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| C335 | 4030017720 | S.CER ECJ0EB1H331K | B | 17/32.4 |
| C336 | 4030016930 | S.CER ECJ0EB1A104K | T | 25.9/69.8 |
| C337 | 4030016940 | S.CER ECJ0EB1A393K | T | 11.2/79.1 |
| C338 | 4030017760 | S.CER ECJ0EB1H222K | B | 19.2/29.6 |
| C339 | 4030016930 | S.CER ECJ0EB1A104K | B | 11.9/46.2 |
| C340 | 4030017750 | S.CER ECJ0EB1E122K | B | 15.2/46.4 |
| C341 | 4030017460 | S.CER ECJ0EB1E102K | T | 14.5/77.3 |
| C342 | 4030016930 | S.CER ECJ0EB1A104K | T | 27.1/55.8 |
| C343 | 4030017460 | S.CER ECJ0EB1E102K | T | 26.7/57.1 |
| C344 | 4030017260 | S.CER C2012 JB 0J 475KT | T | 14.5/66.7 |
| C345 | 4030016930 | S.CER ECJ0EB1A104K | T | 12.8/74.1 |
| C346 | 4030016930 | S.CER ECJ0EB1A104K | T | 15.2/74.3 |
| C347 | 4030017710 | S.CER ECJ0EC1H181J | T | 28.8/59.8 |
| C348 | 4030016930 | S.CER ECJ0EB1A104K | T | 26.7/58.8 |
| C349 | 4030016930 | S.CER ECJ0EB1A104K | T | 24.8/77.3 |
| C350 | 4030017460 | S.CER ECJ0EB1E102K | T | 41.5/11.8 |
| C351 | 4030016930 | S.CER ECJ0EB1A104K | T | 25.7/74.1 |
| C352 | 4030017420 | S.CER ECJ0EC1H470J | T | 32.4/9.3 |
| C353 | 4030016930 | S.CER ECJ0EB1A104K | T | 26/72.8 |
| C354 | 4030016930 | S.CER ECJ0EB1A104K | T | 27.1/53.9 |
| C355 | 4030016930 | S.CER ECJ0EB1A104K | T | 23.7/66 |
| C356 | 4030016930 | S.CER ECJ0EB1A104K | T | 23.7/65.1 |
| C357 | 4030017420 | S.CER ECJ0EC1H470J | T | 26.9/52.1 |
| C358 | 4030017420 | S.CER ECJ0EC1H470J | T | 32.4/10.2 |
| C359 | 4030017460 | S.CER ECJ0EB1E102K | T | 41.5/17.2 |
| C360 | 4030017460 | S.CER ECJ0EB1E102K | T | 37.4/3.9 |
| C361 | 4030018090 | S.CER ECJ0EB1C822K | T | 28.6/52.1 |
| C362 | 4030018560 | S.CER C2012 JB 1A 475K-T | T | 13.4/70.3 |
| C363 | 4030017420 | S.CER ECJ0EC1H470J | T | 35.1/51.8 |
| C364 | 4030017510 | S.CER ECJ0EC1H680J | T | 31.2/53 |
| C365 | 4030016930 | S.CER ECJ0EB1A104K | T | 36.9/51.8 |
| C366 | 4030017420 | S.CER ECJ0EC1H470J | T | 30.9/60.1 |
| C367 | 4030017460 | S.CER ECJ0EB1E102K | T | 28/27.1 |
| C368 | 4030017740 | S.CER ECJ0EB1E821K | T | 32.4/52.7 |
| C369 | 4030017460 | S.CER ECJ0EB1E102K | B | 40.6/33.8 |
| C370 | 4030017420 | S.CER ECJ0EC1H470J | T | 33.9/34.2 |
| C371 | 4030017460 | S.CER ECJ0EB1E102K | B | 38.6/34.2 |
| C372 | 4030018240 | S.CER ECJ0EB1E562K | T | 31.8/60.1 |
| C373 | 4030017710 | S.CER ECJ0EC1H181J | T | 36.7/57 |
| C374 | 4030016930 | S.CER ECJ0EB1A104K | T | 34.7/53.2 |
| C375 | 4030016780 | S.CER ECJ0EB1C153K | T | 32.9/50.5 |
| C376 | 4030018110 | S.CER ECJ0EB1H272K | T | 30/60.1 |
| C377 | 4030017420 | S.CER ECJ0EC1H470J | T | 32.7/34.5 |
| C378 | 4030016930 | S.CER ECJ0EB1A104K | B | 5.2/11.7 |
| C379 | 4030017460 | S.CER ECJ0EB1E102K | T | 25.8/51 |
| C380 | 4030016930 | S.CER ECJ0EB1A104K | B | 8.8/5.7 |
| C381 | 4030016790 | S.CER ECJ0EB1C103K | B | 4/6.3 |
| C382 | 4030016930 | S.CER ECJ0EB1A104K | T | 21.2/49.5 |
| C383 | 4030017420 | S.CER ECJ0EC1H470J | T | 15.3/23 |
| C384 | 4030017420 | S.CER ECJ0EC1H470J | T | 16.2/23 |
| C385 | 4030016930 | S.CER ECJ0EB1A104K | T | 22.8/47.1 |
| C386 | 4030017660 | S.CER ECJ0EC1H330J | B | 8/23.2 |
| C387 | 4030016930 | S.CER ECJ0EB1A104K | T | 25.6/68.9 |
| C388 | 4030017460 | S.CER ECJ0EB1E102K | T | 28.5/16.9 |
| C389 | 4030017460 | S.CER ECJ0EB1E102K | T | 21.9/12.4 |
| C390 | 4030016790 | S.CER ECJ0EB1C103K | B | 10.3/25.5 |
| C391 | 4030017590 | S.CER ECJ0EC1H070C | B | 13.7/21.7 |
| C392 | 4030017460 | S.CER ECJ0EB1E102K | T | 25/13.4 |
| C393 | 4030017400 | S.CER ECJ0EC1H220J | B | 12.3/19.7 |
| C394 | 4030016930 | S.CER ECJ0EB1A104K | B | 29.1/69.1 |
| C395 | 4030017420 | S.CER ECJ0EC1H470J | T | 42.8/73.7 |
| C396 | 4030017460 | S.CER ECJ0EB1E102K | T | 20.9/13.8 |
| C397 | 4030017460 | S.CER ECJ0EB1E102K | T | 20.5/21.8 |
| C398 | 4030016930 | S.CER ECJ0EB1A104K | B | 10.3/11.1 |
| C399 | 4030016930 | S.CER ECJ0EB1A104K | B | 10.3/12 |
| C402 | 4030017420 | S.CER ECJ0EC1H470J | T | 24.2/29.1 |
| C404 | 4030017620 | S.CER ECJ0EC1H100C | T | 42.8/70.7 |
| C405 | 4030017620 | S.CER ECJ0EC1H100C | T | 42.8/71.6 |
| C408 | 4030017420 | S.CER ECJ0EC1H470J | T | 29.8/22.2 |
| C409 | 4030017760 | S.CER ECJ0EB1H222K | T | 11.5/38.7 |
| C410 | 4030017420 | S.CER ECJ0EC1H470J | T | 29.3/20.9 |
| C411 | 4030017420 | S.CER ECJ0EC1H470J | T | 29.3/20 |
| C412 | 4030017420 | S.CER ECJ0EC1H470J | B | 33.5/18.1 |
| C413 | 4030017420 | S.CER ECJ0EC1H470J | B | 32.1/17.7 |
| C415 | 4030017420 | S.CER ECJ0EC1H470J | B | 14.9/3.2 |
| C416 | 4030017420 | S.CER ECJ0EC1H470J | B | 19.3/3.9 |
| C418 | 4030016930 | S.CER ECJ0EB1A104K | T | 23.1/11.5 |
| C419 | 4030017460 | S.CER ECJ0EB1E102K | B | 1.9/105.2 |
| C420 | 4030016930 | S.CER ECJ0EB1A104K | B | 34.1/19.3 |
| C421 | 4030016790 | S.CER ECJ0EB1C103K | B | 1.9/107 |
| C422 | 4030017460 | S.CER ECJ0EB1E102K | B | 4.3/107.9 |
| C423 | 4030017460 | S.CER ECJ0EB1E102K | B | 8.8/103.4 |
| C424 | 4030016790 | S.CER ECJ0EB1C103K | B | 8.6/99.8 |
| C425 | 4030017460 | S.CER ECJ0EB1E102K | B | 7.2/103.6 |
| C426 | 4030017420 | S.CER ECJ0EC1H470J | B | 25.4/3.2 |
| C427 | 4030017420 | S.CER ECJ0EC1H470J | B | 26.3/3.2 |
| C428 | 4030017420 | S.CER ECJ0EC1H470J | B | 27.2/3.2 |
| C429 | 4030017420 | S.CER ECJ0EC1H470J | B | 29.2/4.6 |
| C430 | 4030017420 | S.CER ECJ0EC1H470J | B | 30.1/5.7 |
| C431 | 4030017420 | S.CER ECJ0EC1H470J | B | 30.1/6.7 |
| C432 | 4030017420 | S.CER ECJ0EC1H470J | B | 30.1/7.6 |
| C433 | 4030017420 | S.CER ECJ0EC1H470J | B | 32.1/8 |
| C434 | 4030017420 | S.CER ECJ0EC1H470J | B | 32.3/8.9 |

## [MAIN UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| C435 | 4030017420 | S.CER ECJ0EC1H470J | B | 32.3/9.8 |
| C436 | 4030017420 | S.CER ECJ0EC1H470J | B | 32/10.7 |
| C437 | 4030017420 | S.CER ECJ0EC1H470J | B | 34.6/11.6 |
| C438 | 4030017420 | S.CER ECJ0EC1H470J | B | 34.6/12.5 |
| C439 | 4030017420 | S.CER ECJ0EC1H470J | B | 33.6/13.8 |
| C440 | 4030017420 | S.CER ECJ0EC1H470J | B | 31.9/14.2 |
| C441 | 4030017460 | S.CER ECJ0EB1E102K | B | 4.3/87.2 |
| C442 | 4030016790 | S.CER ECJ0EB1C103K | B | 6.1/86.6 |
| C443 | 4030017460 | S.CER ECJ0EB1E102K | B | 4.3/108.8 |
| C444 | 4550006250 | S.TAN TEESVA 1A 106M8L | B | 12.3/23.6 |
| C445 | 4550005980 | S.TAN TEESVA 1A 475M8L | B | 2.9/114.3 |
| C446 | 4030016930 | S.CER ECJ0EB1A104K | T | 30.3/78.5 |
| C447 | 4030016930 | S.CER ECJ0EB1A104K | B | 6.9/116 |
| C448 | 4030016930 | S.CER ECJ0EB1A104K | B | 12.7/122.3 |
| C449 | 4030018860 | S.CER ECJ0EB0J105K | B | 10.5/116.9 |
| C450 | 4030016790 | S.CER ECJ0EB1C103K | T | 10.9/11.1 |
| C451 | 4510004630 | S.ELE ECEV1CA100SR | T | 8.7/120.2 |
| C452 | 4030017460 | S.CER ECJ0EB1E102K | T | 43/65.1 |
| C453 | 4030017460 | S.CER ECJ0EB1E102K | B | 15.5/122.1 |
| C454 | 4030017460 | S.CER ECJ0EB1E102K | B | 7.3/9.7 |
| C455 | 4030017430 | S.CER ECJ0EC1H101J | T | 2.6/114.9 |
| C456 | 4030017430 | S.CER ECJ0EC1H101J | T | 4.5/106.8 |
| C457 | 4030017430 | S.CER ECJ0EC1H101J | T | 3.5/88.3 |
| C458 | 4030017430 | S.CER ECJ0EC1H101J | T | 2.5/61.9 |
| C459 | 4550006250 | S.TAN TEESVA 1A 106M8L | T | 38.7/83.1 |
| C460 | 4030017490 | S.CER C1608 JB 1A 105K-T | B | 28/30 |
| C461 | 4030016790 | S.CER ECJ0EB1C103K | B | 8/116.9 |
| C462 | 4030017420 | S.CER ECJ0EC1H470J | B | 35.3/45.6 |
| C463 | 4030017460 | S.CER ECJ0EB1E102K | B | 34.4/85.2 |
| C464 | 4030017460 | S.CER ECJ0EB1E102K | T | 32/97 |
| C465 | 4030017460 | S.CER ECJ0EB1E102K | T | 33.7/88.9 |
| C466 | 4030017750 | S.CER ECJ0EB1E122K | B | 18.2/32 |
| C470 | 4030017730 | S.CER ECJ0EB1E471K | T | 42.3/67 |
| C471 | 4030017730 | S.CER ECJ0EB1E471K | T | 34.8/33 |
| C472 | 4030018860 | S.CER ECJ0EB0J105K | T | 11.1/72.6 |
| C473 | 4030017430 | S.CER ECJ0EC1H101J | B | 40.1/68.8 |
| C474 | 4030017430 | S.CER ECJ0EC1H101J | T | 42.8/72.8 |
| C475 | 4030017430 | S.CER ECJ0EC1H101J | T | 42.8/69.8 |
| | | | | |
| J1 | 6510018430 | S.CNR AXN330C038P | T | 37.5/16.1 |
| J2 | 6510018430 | S.CNR AXN330C038P | T | 38.7/38.2 |
| J3 | 6510022710 | S.CNR 30FLZ-SM1-TB | T | 38.4/70.5 |
| | | | | |
| F1 | 5210000830 | S.FUS ERBFE3R00U | T | 13.2/120.1 |
| | | | | |
| S1 | 2260002800 | S.SW SW-167 (SKQTLAE010) | T | 2.1/119.2 |
| S2 | 2260002800 | S.SW SW-167 (SKQTLAE010) | T | 2.1/109.8 |
| S3 | 2260002840 | SW SKHLLFA010 | | |
| S4 | 2260002800 | S.SW SW-167 (SKQTLAE010) | T | 2.1/66.4 |
| | | | | |
| EP1 | 6910015370 | S.BEA ACZ1005Y-102-T | B | 3.8/65.4 |
| EP2 | 6910015370 | S.BEA ACZ1005Y-102-T | T | 21.6/93.9 |
| EP3 | 6910012350 | S.BEA MMZ1608Y 102BT | T | 18.5/116.5 |
| EP4 | 6910015370 | S.BEA ACZ1005Y-102-T | B | 32.9/99 |
| EP5 | 6910015370 | S.BEA ACZ1005Y-102-T | B | 26/25.8 |
| EP6 | 6910015370 | S.BEA ACZ1005Y-102-T | B | 24.4/24.5 |
| EP300 | 6910015370 | S.BEA ACZ1005Y-102-T | B | 20.4/42.9 |
| EP301 | 6910015370 | S.BEA ACZ1005Y-102-T | B | 11.8/34.5 |

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

S.=Surface mount

## [FRONT UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| IC1 | 1110006440 | S.IC M62320FP DF5J | B | 20.7/73.6 |
| IC2 | 1110006440 | S.IC M62320FP DF5J | B | 20.7/62.5 |
| IC101 | 1180002400 | S.REG S-812C30AMC-C2K-T2 | B | 9.4/80.8 |
| IC201 | 1110001810 | S.IC TA7368F (ER) | B | 29.6/47.4 |
| IC203 | 1110005340 | S.IC NJM12902V-TE1 | B | 8.2/68 |
| IC204 | 1130004200 | S.IC TC4S66F (TE85R) | B | 7.6/75.9 |
| IC205 | 1130004200 | S.IC TC4S66F (TE85R) | B | 34/56.1 |
| Q1 | 1590000980 | S.TR DTB123EK T146 | B | 34.6/94.7 |
| Q2 | 1590000980 | S.TR DTB123EK T146 | B | 34.4/98.3 |
| Q102 | 1590001940 | S.TR DTC144EE TL | B | 26.2/72.9 |
| Q103 | 1590000980 | S.TR DTB123EK T146 | B | 12.7/76.7 |
| Q104 | 1590000980 | S.TR DTB123EK T146 | B | 28.9/35.7 |
| Q201 | 1590002230 | S.TR UMG2N TL | B | 14/55 |
| Q202 | 1520000450 | S.TR 2SB1132 T100 Q | B | 34.4/37.9 |
| Q203 | 1590001190 | S.TR XP6501-(TX) .AB | B | 29.9/42.1 |
| Q206 | 1590002430 | S.TR DTA144EE TL | B | 14/50.9 |
| Q207 | 1590000430 | S.TR DTC144EUA T106 | B | 37.1/96.5 |
| Q208 | 1530002840 | S.TR 2SC4116-Y (TE85R) | B | 42.4/114.7 |
| Q209 | 1560001330 | S.FET RSR025N03 | B | 42/111.7 |
| Q210 | 1560001330 | S.FET RSR025N03 | B | 42.3/108.3 |
| D1 | 1730002530 | S.ZEN NNCD6.2G-T1 | B | 25.2/81.6 |
| D101 | 1160000140 | S.DIO DAP222 TL | B | 15.3/47.1 |
| D102 | 1160000140 | S.DIO DAP222 TL | B | 15.3/45 |
| D201 | 1790001250 | S.DIO MA2S111-(TX) | B | 17.2/49 |
| D202 | 1790001250 | S.DIO MA2S111-(TX) | B | 10.9/71.5 |
| D203 | 1790001250 | S.DIO MA2S111-(TX) | B | 36.2/54.2 |
| D204 | 1790001250 | S.DIO MA2S111-(TX) | B | 12.3/50.9 |
| D205 | 1790001250 | S.DIO MA2S111-(TX) | B | 14.9/52.7 |
| R1 | 7030005000 | S.RES ERJ2GEJ 471 X (470 Ω) | T | 34.8/127 |
| R2 | 7030007280 | S.RES ERJ2GEJ 331 X (330 Ω) | T | 34.8/126.1 |
| R3 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 36.5/93.5 |
| R4 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 26.1/77 |
| R5 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 26.1/75.8 |
| R6 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 25.7/67 |
| R7 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 25.8/65.1 |
| R11 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 21.4/87.7 |
| R12 | 7030001090 | S.RES MCR50JZHJ 47 Ω (470) | B | 33.7/83.9 |
| R13 | 7030003440 | S.RES ERJ3GEYJ 102 V (1 kΩ) | B | 26.9/87.3 |
| R14 | 7030003440 | S.RES ERJ3GEYJ 102 V (1 kΩ) | B | 23.3/87.3 |
| R15 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 22.3/87.7 |
| R16 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 28/87.1 |
| R30 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 40.7/74.4 |
| R31 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 40.7/75.3 |
| R32 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 40.7/76.2 |
| R33 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 40.5/77.1 |
| R34 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 17.7/89.4 |
| R35 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 18.6/89.4 |
| R36 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 19.5/89.4 |
| R37 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 20.4/89.3 |
| R38 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 40.7/65.6 |
| R40 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 40.7/72.5 |
| R50 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) [IC-F70DT/T] only | B | 16.4/79.1 |
| R51 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) [IC-F70DS/S] only | B | 17/80.6 |
| R101 | 7030007270 | S.RES ERJ2GEJ 151 X (150 Ω) | B | 12.6/78.9 |
| R102 | 7030008370 | S.RES ERJ2GEJ 561 X (560 Ω) | B | 11.1/78.3 |
| R103 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 18.2/33.6 |
| R104 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 14.8/58.7 |
| R105 | 7030007250 | S.RES ERJ2GEJ 220 X (22 Ω) | B | 9.1/93.2 |
| R106 | 7030007250 | S.RES ERJ2GEJ 220 X (22 Ω) | B | 10/93.2 |
| R107 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 14.8/59.7 |
| R108 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 14.8/60.7 |
| R109 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 14.8/61.7 |
| R110 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 26.6/58.8 |
| R111 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 26.6/59.7 |
| R112 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 26.6/60.6 |
| R113 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 26.6/61.5 |
| R115 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 12.8/94.2 |
| R116 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 40/67.7 |
| R201 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 17.6/55.3 |
| R202 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 16.3/54.2 |
| R203 | 7030003830 | S.RES ERJ3GEYJ 185 V (1.8 MΩ) | B | 26.8/71.1 |
| R204 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 15.5/48.9 |
| R205 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 14.5/49.2 |
| R207 | 7030005600 | S.RES ERJ2GEJ 273 X (27 kΩ) | B | 11.8/63.6 |
| R208 | 7030007060 | S.RES ERJ2GEJ 684X (680 kΩ) | B | 12.6/69.7 |
| R209 | 7030005230 | S.RES ERJ2GEJ 334 X (330 kΩ) | B | 13.8/68.6 |
| R210 | 7030007340 | S.RES ERJ2GEJ 153 X (15 kΩ) | B | 13.8/66.8 |
| R211 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 13.8/69.5 |
| R212 | 7030007300 | S.RES ERJ2GEJ 332 X (3.3 kΩ) | B | 3/69 |
| R213 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 31.5/57.4 |
| R214 | 7030005070 | S.RES ERJ2GEJ 683 X (68 kΩ) | B | 36.2/56.3 |
| R215 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 27.2/42.1 |
| R216 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 13.6/49.2 |
| R217 | 7030007340 | S.RES ERJ2GEJ 153 X (15 kΩ) | B | 10.2/64.5 |
| R219 | 7030003860 | S.RES ERJ3GE JPW V | B | 7.3/64.3 |

## [FRONT UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| R221 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 6.4/63.2 |
| R222 | 7030008300 | S.RES ERJ2GEJ 184 X (180 kΩ) | B | 35.4/51.2 |
| R223 | 7030005600 | S.RES ERJ2GEJ 273 X (27 kΩ) | B | 3/69.9 |
| R224 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | B | 2.8/67.1 |
| R225 | 7030009140 | S.RES ERJ2GEJ 272 X (2.7 kΩ) | B | 30.2/43.9 |
| R226 | 7030007300 | S.RES ERJ2GEJ 332 X (3.3 kΩ) | B | 27.2/43.9 |
| R227 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 16.7/51.2 |
| R228 | 7030005700 | S.RES ERJ2GEJ 274 X (270 kΩ) | B | 5.1/64.9 |
| R229 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 9.3/72.6 |
| R231 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 3/68.1 |
| R232 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 7.6/72.6 |
| R235 | 7030007260 | S.RES ERJ2GEJ 330 X (33 Ω) | B | 27.6/51.9 |
| R236 | 7030005530 | S.RES ERJ2GEJ 100 X (10 Ω) | B | 27.6/51 |
| R237 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | B | 5.6/78.2 |
| R238 | 7030005060 | S.RES ERJ2GEJ 333 X (33 kΩ) | B | 6/79.4 |
| R239 | 7030005170 | S.RES ERJ2GEJ 474 X (470 kΩ) | B | 36.5/99.3 |
| R240 | 7030005170 | S.RES ERJ2GEJ 474 X (470 kΩ) | B | 38.5/98.7 |
| R241 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | B | 36.9/98.4 |
| R242 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 43.2/116.7 |
| R250 | 7030003860 | S.RES ERJ3GE JPW V | B | 27.2/68.1 |
| R251 | 7030003860 | S.RES ERJ3GE JPW V | B | 40.2/78.8 |
| R259 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 16.6/87.8 |
| R260 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 15.7/87.8 |
| R261 | 7030003860 | S.RES ERJ3GE JPW V | B | 41.3/71.5 |
| R262 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 16.7/53 |
| R263 | 7030010040 | S.RES ERJ2GE-JPW | B | 40.5/46 |
| R264 | 7030010040 | S.RES ERJ2GE-JPW | B | 40.5/40 |
| R265 | 7030010040 | S.RES ERJ2GE-JPW | B | 40.5/34 |
| R266 | 7030010040 | S.RES ERJ2GE-JPW | B | 40.5/28 |
| R267 | 7030010040 | S.RES ERJ2GE-JPW | B | 40.5/22 |
| R268 | 7030010040 | S.RES ERJ2GE-JPW | B | 40.5/15.9 |
| R269 | 7030010040 | S.RES ERJ2GE-JPW | B | 40.5/10 |
| R270 | 7030010040 | S.RES ERJ2GE-JPW | B | 40.5/4 |
| R271 | 7030010040 | S.RES ERJ2GE-JPW | B | 5.4/46 |
| R272 | 7030010040 | S.RES ERJ2GE-JPW | B | 5.4/40 |
| R273 | 7030010040 | S.RES ERJ2GE-JPW | B | 5.4/34 |
| R274 | 7030010040 | S.RES ERJ2GE-JPW | B | 5.5/28 |
| R275 | 7030010040 | S.RES ERJ2GE-JPW | B | 5.5/16 |
| R276 | 7030010040 | S.RES ERJ2GE-JPW | B | 5.5/4 |
| R277 | 7030010040 | S.RES ERJ2GE-JPW | B | 5.5/10 |
| R278 | 7030010040 | S.RES ERJ2GE-JPW | B | 5.5/22 |
| C2 | 4030016790 | S.CER ECJ0EB1C103K | B | 21.6/88.9 |
| C3 | 4030017460 | S.CER ECJ0EB1E102K | B | 17/86.5 |
| C4 | 4030016930 | S.CER ECJ0EB1A104K | B | 15.3/75.2 |
| C5 | 4030016930 | S.CER ECJ0EB1A104K | B | 15.2/64.2 |
| C6 | 4030017460 | S.CER ECJ0EB1E102K | B | 15.3/74.3 |
| C7 | 4030017460 | S.CER ECJ0EB1E102K | B | 15.2/63.2 |
| C8 | 4030017430 | S.CER ECJ0EC1H101J | B | 20.8/85.8 |
| C9 | 4030017430 | S.CER ECJ0EC1H101J | B | 19.8/87.8 |
| C10 | 4030017430 | S.CER ECJ0EC1H101J | B | 18.9/87.8 |
| C11 | 4030017460 | S.CER ECJ0EB1E102K | B | 26.7/84.7 |
| C12 | 4030017460 | S.CER ECJ0EB1E102K | B | 24.7/83.8 |
| C13 | 4030017430 | S.CER ECJ0EC1H101J | B | 41.1/73.4 |
| C15 | 4030017430 | S.CER ECJ0EC1H101J | B | 17.5/87.8 |
| C16 | 4030016790 | S.CER ECJ0EB1C103K | B | 22/86.1 |
| C17 | 4030009580 | S.CER C1608 JB 1H 681K-T | B | 26.9/38.1 |
| C18 | 4030009580 | S.CER C1608 JB 1H 681K-T | B | 28.8/32.6 |
| C19 | 4030009580 | S.CER C1608 JB 1H 681K-T | B | 30/33.4 |
| C101 | 4550006300 | S.TAN ECST1AY475R | B | 13.8/80.6 |
| C102 | 4030016930 | S.CER ECJ0EB1A104K | B | 12.3/82.1 |
| C103 | 4030016930 | S.CER ECJ0EB1A104K | B | 16.4/32.6 |
| C104 | 4030017420 | S.CER ECJ0EC1H470J | B | 41.3/67.6 |
| C105 | 4550006150 | S.TAN ECST1CY105R | B | 7.2/90.4 |
| C106 | 4550006620 | S.TAN ECST0JY226R | B | 11.6/83.8 |
| C107 | 4030016790 | S.CER ECJ0EB1C103K | B | 10.8/85.4 |
| C108 | 4030009580 | S.CER C1608 JB 1H 681K-T | B | 15.4/43.3 |
| C109 | 4030016930 | S.CER ECJ0EB1A104K | B | 9/91.5 |
| C110 | 4030016930 | S.CER ECJ0EB1A104K | B | 7.5/93.6 |
| C111 | 4550006450 | S.TAN ECST1EY105R | B | 12.2/90.6 |
| C112 | 4030016930 | S.CER ECJ0EB1A104K | B | 11.3/93.6 |
| C113 | 4030016930 | S.CER ECJ0EB1A104K | B | 14.8/76.4 |
| C201 | 4030017460 | S.CER ECJ0EB1E102K | B | 27/70 |
| C202 | 4030018100 | S.CER ECJ0EB1H681K | B | 11.8/64.5 |
| C203 | 4030017730 | S.CER ECJ0EB1E471K | B | 13.8/67.7 |
| C204 | 4550006300 | S.TAN ECST1AY475R | B | 3.9/73.7 |
| C205 | 4030016960 | S.CER ECJ0EB1C183K | B | 12.6/67.3 |
| C206 | 4030016960 | S.CER ECJ0EB1C183K | B | 12.6/65.7 |
| C207 | 4030017730 | S.CER ECJ0EB1E471K | B | 5.8/71.4 |
| C208 | 4030017460 | S.CER ECJ0EB1E102K | B | 37.6/39.7 |
| C209 | 4030017460 | S.CER ECJ0EB1E102K | B | 37.6/38.8 |
| C210 | 4030017460 | S.CER ECJ0EB1E102K | B | 37.3/44.9 |
| C211 | 4030016930 | S.CER ECJ0EB1A104K | B | 36.6/52.5 |
| C212 | 4030017460 | S.CER ECJ0EB1E102K | B | 27.2/43 |
| C213 | 4030017460 | S.CER ECJ0EB1E102K | B | 18.1/51.2 |
| C214 | 4030017460 | S.CER ECJ0EB1E102K | B | 16.3/55.1 |
| C215 | 4030017460 | S.CER ECJ0EB1E102K | B | 15.6/51.2 |
| C216 | 4030016930 | S.CER ECJ0EB1A104K | B | 9/64.3 |
| C220 | 4550006250 | S.TAN TEESVA 1A 106M8L | B | 10.3/60.8 |
| C221 | 4030017490 | S.CER C1608 JB 1A 105K-T | B | 8.3/61.8 |
| C222 | 4030017460 | S.CER ECJ0EB1E102K | B | 35.2/48.9 |
| C224 | 4030017460 | S.CER ECJ0EB1E102K | B | 33.9/49.4 |

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

## [FRONT UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| C225 | 4030016930 | S.CER ECJ0EB1A104K | B | 29.8/40.2 |
| C226 | 4550006080 | S.TAN TEESVB2 1C 106M8L | B | 34.9/42.7 |
| C229 | 4030017460 | S.CER ECJ0EB1E102K | B | 5.1/77 |
| C230 | 4030017510 | S.CER ECJ0EC1H680J | B | 5.1/64 |
| C231 | 4030017460 | S.CER ECJ0EB1E102K | B | 5.8/72.3 |
| C234 | 4030017460 | S.CER ECJ0EB1E102K | B | 2.8/65.3 |
| C235 | 4030017460 | S.CER ECJ0EB1E102K | B | 2.8/66.2 |
| C236 | 4550006250 | S.TAN TEESVA 1A 106M8L | B | 27.9/54.9 |
| C237 | 4030017420 | S.CER ECJ0EC1H470J | B | 24.8/46.4 |
| C238 | 4030016950 | S.CER ECJ0EB1A473K | B | 25/49.3 |
| C239 | 4030017460 | S.CER ECJ0EB1E102K | B | 37.5/94.7 |
| C240 | 4030017460 | S.CER ECJ0EB1E102K | B | 14.1/57.1 |
| C241 | 4030016930 | S.CER ECJ0EB1A104K | B | 12.3/61.5 |
| C242 | 4030016790 | S.CER ECJ0EB1C103K | B | 10.5/73.2 |
| C243 | 4030016930 | S.CER ECJ0EB1A104K | B | 7.6/73.8 |
| C244 | 4030017460 | S.CER ECJ0EB1E102K | B | 3.4/90.6 |
| C245 | 4550007060 | S.TAN ECSTIAX336R | B | 34.7/90.7 |
| C246 | 4550007060 | S.TAN ECSTIAX336R | B | 34.7/87.4 |
| C247 | 4030006900 | S.CER C1608 JB 1H 103K-T | B | 34.4/52.7 |
| C248 | 4030017460 | S.CER ECJ0EB1E102K | B | 31.5/58.3 |
| C255 | 4030017430 | S.CER ECJ0EC1H101J | B | 41.3/78.5 |
| C256 | 4030017430 | S.CER ECJ0EC1H101J | B | 28.5/84 |
| C259 | 4030017430 | S.CER ECJ0EC1H101J | B | 28.9/82.3 |
| C260 | 4030017460 | S.CER ECJ0EB1E102K | B | 41.4/70.4 |
| C261 | 4030017460 | S.CER ECJ0EB1E102K | B | 41.4/68.6 |
| C263 | 4030017460 | S.CER ECJ0EB1E102K | B | 41.2/66.5 |
| C264 | 4030017460 | S.CER ECJ0EB1E102K | B | 21.5/90.3 |
| C270 | 4030017430 | S.CER ECJ0EC1H101J | B | 41.2/64.7 |
| C271 | 4030016930 | S.CER ECJ0EB1A104K | B | 41.2/63.8 |
| C272 | 4030017430 | S.CER ECJ0EC1H101J | T | 27.1/91.8 |
| C273 | 4030017430 | S.CER ECJ0EC1H101J | T | 25.9/91.4 |
| C274 | 4030016790 | S.CER ECJ0EB1C103K | T | 25.6/93.4 |
| C275 | 4030017430 | S.CER ECJ0EC1H101J | B | 41.5/69.5 |
| J1 | 6510022710 | S.CNR 30FLZ-SM1-TB | B | 36/70.5 |
| J2 | 6510024590 | S.CNR 20FLH-SM1-TB | B | 23.5/94.2 |
| J101 | 6510024570 | S.CNR 52745-0896 | B | 9.7/98 |
| J201 | 6510021900 | S.CNR BM02B-ASRS-TF | B | 40.3/118.5 |
| DS1 | 5040003140 | S.LED FRDG1211C-TR | T | 32.5/129.5 |
| DS2 | 5030002830 | LCD M4-0078TAY-2 | | |
| DS101 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DT/T] only | T | 15.6/12.9 |
| DS102 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DT/T] only | T | 30.4/12.9 |
| DS106 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DT/T] only | T | 15.6/22.1 |
| DS107 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DT/T] only | T | 30.4/22.1 |
| DS108 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DT/T] only | T | 15.6/31.3 |
| DS109 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DT/T] only | T | 30.4/31.3 |
| DS110 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DS/S] only | T | 12.1/39.3 |
| DS111 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DS/S] only | T | 33.8/39.3 |
| DS112 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DT/T] only | T | 12.1/40.8 |
| DS113 | 5010000120 | S.LED LN1371G-(TR) [IC-F70DT/T] only | T | 33.8/40.8 |
| DS201 | 5040002960 | S.LED SML-A12MT T86 | T | 11.6/87.7 |
| DS202 | 5040002960 | S.LED SML-A12MT T86 | T | 22.1/87.7 |
| DS203 | 5040002960 | S.LED SML-A12MT T86 | T | 32.6/87.7 |
| MC201 | 7700002310 | MIC EM-140 | | |
| S117 | 2260002800 | S.SW SW-167 (SKQTLAE010) | B | 38.5/129 |
| EP2 | 6910012350 | S.BEA MMZ1608Y 102BT | B | 30.3/86.8 |
| EP3 | 6910012350 | S.BEA MMZ1608Y 102BT | B | 29.1/86.8 |
| EP4 | 6910012350 | S.BEA MMZ1608Y 102BT | B | 25.7/87.3 |
| EP5 | 6910012350 | S.BEA MMZ1608Y 102BT | B | 24.5/87.3 |
| EP6 | 6910012350 | S.BEA MMZ1608Y 102BT | B | 31.2/89.8 |

## [DSP UNIT] (IC-F70DT/DS only)

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| IC1 | 1180002590 | S.REG XC6204B332MR | B | 2.1/19.5 |
| IC2 | 1180002740 | S.REG R1230D151F-TR-F | B | 2.9/30.3 |
| IC3 | 1180002590 | S.REG XC6204B332MR | T | 23.7/7.5 |
| IC4 | 1110003800 | S.IC NJM2904V-TE1 | T | 14.5/11.8 |
| IC5 | 1110006230 | S.IC NJM2711F-TE1 | B | 14.6/16.4 |
| IC7 | 1140011980 | S.IC TMS320VC5416GGU120 | B | 11.8/30.4 |
| IC8 | 1190002080 | S.IC AD7476ARTZ-500RL7 | T | 14.7/18.4 |
| IC9 | 1130011610 | S.IC AK4550VT-E2 | T | 23.5/19.3 |
| IC10 | 1110006230 | S.IC NJM2711F-TE1 | T | 24.2/29.7 |
| IC12 | 1140011880 | S.IC HD64F2239TE16 | T | 11.8/30.4 |
| IC13 | 1130003830 | S.IC TC7S04F (TE85R) | B | 11.6/22.5 |
| IC14 | 1110005730 | S.IC S-80928CNMC-G8Y-T2 | B | 19.6/38.1 |
| IC15 | 1130011600 | S.IC TC7MET541AFK (EC) | T | 7/16.4 |
| IC17 | 1130010390 | S.IC HN58X2416TI | B | 8.9/38.5 |
| Q1 | 1530002060 | S.TR 2SC4081 T106 R | B | 23.4/22 |
| FI1 | 2020001780 | S.CER CFWCA450KEFA-R0 | B | 20.7/12.1 |
| X1 | 6050012080 | S.XTL CR-798 (12.288 MHz) | T | 23.4/36.3 |
| L1 | 6200003590 | S.COL EXCCL3225U1 | T | 23.5/2.5 |
| L2 | 6200003960 | S.COL MLF1608A 1R0K-T | B | 3.6/23.6 |
| L3 | 6200003960 | S.COL MLF1608A 1R0K-T | T | 24.6/12.1 |
| L4 | 6200003960 | S.COL MLF1608A 1R0K-T | T | 1/24.3 |
| L5 | 6200003960 | S.COL MLF1608A 1R0K-T | B | 3.6/24.8 |
| L6 | 6200003960 | S.COL MLF1608A 1R0K-T | B | 3.7/37.2 |
| L7 | 6200011440 | S.COL NLFV25T-330K-PF | B | 3.1/33.3 |
| L8 | 6200003960 | S.COL MLF1608A 1R0K-T | B | 21.1/5.4 |
| R1 | 7030003860 | S.RES ERJ3GE JPW V | B | 3.7/26 |
| R2 | 7030005030 | S.RES ERJ2GEJ 152 X (1.5 kΩ) | B | 16.3/6.4 |
| R3 | 7030005220 | S.RES ERJ2GEJ 223 X (22 kΩ) | B | 8.2/8 |
| R4 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 19.6/8.4 |
| R5 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 14/12.6 |
| R6 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | B | 11.5/16.8 |
| R7 | 7030005030 | S.RES ERJ2GEJ 152 X (1.5 kΩ) | B | 15.5/13.9 |
| R8 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 20.5/8.4 |
| R9 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 20.7/21.9 |
| R10 | 7030009710 | S.RES ERJ2GEJ 203 X (20 kΩ) | T | 17.5/13.9 |
| R12 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 4.3/9.8 |
| R15 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 11.1/8.6 |
| R16 | 7030009710 | S.RES ERJ2GEJ 203 X (20 kΩ) | T | 18.8/11.3 |
| R17 | 7030008400 | S.RES ERJ2GEJ 182 X (1.8 kΩ) | B | 21.6/21.2 |
| R18 | 7030009290 | S.RES ERJ2GEJ 562 X (5.6 kΩ) | B | 21.8/19.4 |
| R19 | 7030007340 | S.RES ERJ2GEJ 153 X (15 kΩ) | B | 13.7/13.9 |
| R20 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 15.6/14.3 |
| R21 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 11.2/13.9 |
| R22 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 4.3/6.6 |
| R23 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 5.5/8 |
| R24 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 1.9/10.3 |
| R25 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 7.3/8 |
| R26 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 15.3/9.3 |
| R27 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 2.7/7.6 |
| R28 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 6.4/8 |
| R29 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 4.6/6.2 |
| R30 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 3.9/4.3 |
| R31 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 3.6/2.8 |
| R32 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 14.2/5.1 |
| R33 | 7030009710 | S.RES ERJ2GEJ 203 X (20 kΩ) | T | 19.6/9.6 |
| R34 | 7030009710 | S.RES ERJ2GEJ 203 X (20 kΩ) | T | 18.9/13.5 |
| R35 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 19.6/19.5 |
| R36 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 18.4/19.2 |
| R37 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 18/17.7 |
| R38 | 7030007300 | S.RES ERJ2GEJ 332 X (3.3 kΩ) | T | 17.7/16 |
| R39 | 7030009290 | S.RES ERJ2GEJ 562 X (5.6 kΩ) | T | 17.7/15.1 |
| R41 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 16.5/37.9 |
| R42 | 7030007250 | S.RES ERJ2GEJ 220 X (22 Ω) | T | 12.1/16.1 |
| R43 | 7030005210 | S.RES ERJ2GEJ 822 X (8.2 kΩ) | B | 17.1/18.7 |
| R44 | 7030005000 | S.RES ERJ2GEJ 471 X (470 Ω) | T | 20.7/14.1 |
| R45 | 7030005210 | S.RES ERJ2GEJ 822 X (8.2 kΩ) | T | 11.6/17.4 |
| R46 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 16.1/22.6 |
| R47 | 7030004980 | S.RES ERJ2GEJ 101 X (100 Ω) | T | 18.3/20 |
| R48 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 23.8/14.9 |
| R49 | 7030010040 | S.RES ERJ2GE-JPW | T | 25/14.6 |
| R50 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 20.9/31.5 |
| R52 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 20.6/27.2 |
| R53 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 18.5/30.5 |
| R54 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 6.1/20.7 |
| R55 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | T | 2.7/34.4 |
| R56 | 7030005040 | S.RES ERJ2GEJ 472 X (4.7 kΩ) | B | 19.4/31 |
| R57 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 23.4/19.5 |
| R58 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | B | 24.7/20.2 |
| R59 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | T | 25.7/37.3 |
| R61 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 25.1/22.3 |
| R62 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 25.4/32.2 |
| R63 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 25.7/33.8 |
| R64 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 5.3/11.6 |

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)

S.=Surface mount

## [DSP UNIT] (IC-F70DT/DS only)

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| R65 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | T | 25.7/27.1 |
| R66 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 7.3/19.2 |
| R67 | 7030007290 | S.RES ERJ2GEJ 222 X (2.2 kΩ) | T | 22/27.3 |
| R68 | 7030005090 | S.RES ERJ2GEJ 104 X (100 kΩ) | T | 20.8/29.1 |
| R70 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | T | 9.1/10.2 |
| R71 | 7030005600 | S.RES ERJ2GEJ 273 X (27 kΩ) | T | 8.2/10.2 |
| R72 | 7030008290 | S.RES ERJ2GEJ 183 X (18 kΩ) | T | 7.3/10.2 |
| R73 | 7030005600 | S.RES ERJ2GEJ 273 X (27 kΩ) | T | 6.4/9.2 |
| R74 | 7030005600 | S.RES ERJ2GEJ 273 X (27 kΩ) | T | 5.5/9.2 |
| R75 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 9.3/12.4 |
| R76 | 7030007340 | S.RES ERJ2GEJ 153 X (15 kΩ) | T | 8.4/12.4 |
| R77 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | T | 7.5/12.9 |
| R78 | 7030007340 | S.RES ERJ2GEJ 153 X (15 kΩ) | T | 6.6/12.7 |
| R79 | 7030007340 | S.RES ERJ2GEJ 153 X (15 kΩ) | T | 5.7/12 |
| R80 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | B | 20.7/35.9 |
| R82 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 3.5/17.2 |
| R83 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 2.1/38.6 |
| R85 | 7030005050 | S.RES ERJ2GEJ 103 X (10 kΩ) | B | 4.3/38.8 |
| R86 | 7030005010 | S.RES ERJ2GEJ 681 X (680 Ω) | B | 12.1/20.3 |
| R87 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 10.7/18.5 |
| R88 | 7030004970 | S.RES ERJ2GEJ 470 X (47 Ω) | B | 9.8/19.8 |
| R89 | 7030010040 | S.RES ERJ2GE-JPW | T | 3.3/37.4 |
| R90 | 7030008370 | S.RES ERJ2GEJ 561 X (560 Ω) | T | 22/28.9 |
| R91 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 23.4/25.7 |
| R92 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 23.5/24.8 |
| R93 | 7030010040 | S.RES ERJ2GE-JPW | T | 22.2/24 |
| R94 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 7.8/19.8 |
| R95 | 7030005240 | S.RES ERJ2GEJ 473 X (47 kΩ) | T | 17.1/19.6 |
| R96 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 1.6/11.8 |
| R97 | 7030005120 | S.RES ERJ2GEJ 102 X (1 kΩ) | T | 1.9/18.6 |
| C1 | 4550007070 | S.TAN TEESVP 1A 475M8R | B | 1.2/15.3 |
| C2 | 4550007070 | S.TAN TEESVP 1A 475M8R | B | 2/27.6 |
| C3 | 4550007070 | S.TAN TEESVP 1A 475M8R | T | 23/4.9 |
| C4 | 4030017420 | S.CER ECJ0EC1H470J | B | 22.7/1.7 |
| C5 | 4030016930 | S.CER ECJ0EB1A104K | B | 1.3/17.3 |
| C6 | 4030016930 | S.CER ECJ0EB1A104K | B | 4.6/27.4 |
| C7 | 4030016930 | S.CER ECJ0EB1A104K | T | 21.5/7.7 |
| C8 | 4030016930 | S.CER ECJ0EB1A104K | B | 23.7/5.6 |
| C9 | 4030017420 | S.CER ECJ0EC1H470J | B | 9.1/8 |
| C10 | 4550006250 | S.TAN TEESVA 1A 106M8L | B | 23.5/3.3 |
| C11 | 4030017460 | S.CER ECJ0EB1E102K | B | 5.9/23.4 |
| C12 | 4030017460 | S.CER ECJ0EB1E102K | B | 4.9/35.2 |
| C13 | 4030017460 | S.CER ECJ0EB1E102K | T | 24.5/10 |
| C14 | 4550007030 | S.TAN TEESVP 0J 106M8R | B | 4.9/21.3 |
| C15 | 4550007030 | S.TAN TEESVP 0J 106M8R | B | 2.9/35.6 |
| C16 | 4550007030 | S.TAN TEESVP 0J 106M8R | T | 22.4/10.8 |
| C17 | 4550006250 | S.TAN TEESVA 1A 106M8L | B | 14.8/9.5 |
| C18 | 4030016930 | S.CER ECJ0EB1A104K | B | 16.4/12.7 |
| C19 | 4030016930 | S.CER ECJ0EB1A104K | B | 16.4/11.5 |
| C20 | 4030017420 | S.CER ECJ0EC1H470J | T | 17.5/9.7 |
| C21 | 4550006250 | S.TAN TEESVA 1A 106M8L | B | 11.8/13 |
| C22 | 4030016930 | S.CER ECJ0EB1A104K | B | 12.4/16.8 |
| C23 | 4030017680 | S.CER ECJ0EC1H820J | B | 13.2/9 |
| C24 | 4030017730 | S.CER ECJ0EB1E471K | T | 18.4/9.7 |
| C25 | 4030017420 | S.CER ECJ0EC1H470J | T | 20.2/11.3 |
| C26 | 4030016930 | S.CER ECJ0EB1A104K | T | 14/14.3 |
| C27 | 4030017590 | S.CER ECJ0EC1H070C | B | 14.6/13.9 |
| C28 | 4030016930 | S.CER ECJ0EB1A104K | B | 20.9/19.4 |
| C30 | 4030017450 | S.CER ECJ0EB1E271K | T | 19.3/14.7 |
| C31 | 4030017420 | S.CER ECJ0EC1H470J | T | 4.9/13.2 |
| C32 | 4030016930 | S.CER ECJ0EB1A104K | B | 19.6/18.6 |
| C33 | 4030016790 | S.CER ECJ0EB1C103K | T | 12.4/14.6 |
| C35 | 4030017420 | S.CER ECJ0EC1H470J | B | 3.1/7.2 |
| C36 | 4030017420 | S.CER ECJ0EC1H470J | B | 4.3/7.5 |
| C38 | 4030017420 | S.CER ECJ0EC1H470J | B | 3/11.3 |
| C39 | 4030017760 | S.CER ECJ0EB1H222K | B | 19.6/20.4 |
| C40 | 4030017420 | S.CER ECJ0EC1H470J | B | 7.8/9.9 |
| C41 | 4030017420 | S.CER ECJ0EC1H470J | T | 12.9/9.3 |
| C42 | 4030017420 | S.CER ECJ0EC1H470J | T | 3.2/8.8 |
| C43 | 4030017460 | S.CER ECJ0EB1E102K | B | 16.5/39.7 |
| C44 | 4030017420 | S.CER ECJ0EC1H470J | T | 7.6/8.7 |
| C45 | 4030017420 | S.CER ECJ0EC1H470J | B | 3.9/8.7 |
| C46 | 4030017420 | S.CER ECJ0EC1H470J | T | 3.4/6.4 |
| C47 | 4030017460 | S.CER ECJ0EB1E102K | B | 18.6/26.9 |
| C48 | 4030017460 | S.CER ECJ0EB1E102K | B | 19.4/34.7 |
| C49 | 4030017420 | S.CER ECJ0EC1H470J | T | 3.4/5.5 |
| C50 | 4030017420 | S.CER ECJ0EC1H470J | T | 2.4/3.7 |
| C51 | 4030017420 | S.CER ECJ0EC1H470J | B | 15.1/5.1 |
| C52 | 4030016930 | S.CER ECJ0EB1A104K | B | 17.1/19.6 |
| C53 | 4030017460 | S.CER ECJ0EB1E102K | B | 19.4/33.3 |
| C54 | 4030016930 | S.CER ECJ0EB1A104K | T | 20.2/12.9 |
| C55 | 4550007030 | S.TAN TEESVP 0J 106M8R | T | 14.8/15.7 |
| C56 | 4030017460 | S.CER ECJ0EB1E102K | T | 18.3/20.9 |
| C57 | 4030017460 | S.CER ECJ0EB1E102K | B | 14.8/22.6 |
| C58 | 4030016930 | S.CER ECJ0EB1A104K | T | 12.5/17.4 |
| C59 | 4030017460 | S.CER ECJ0EB1E102K | T | 21.8/32.1 |
| C60 | 4030017760 | S.CER ECJ0EB1H222K | T | 22.1/14.9 |
| C62 | 4030017460 | S.CER ECJ0EB1E102K | B | 13.9/22.4 |
| C63 | 4030016930 | S.CER ECJ0EB1A104K | T | 19.9/20 |
| C64 | 4030017460 | S.CER ECJ0EB1E102K | T | 23/14 |
| C65 | 4030016930 | S.CER ECJ0EB1A104K | T | 18.9/17.6 |

## [DSP UNIT] (IC-F70DT/DS only)

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| C66 | 4550007030 | S.TAN TEESVP 0J 106M8R | T | 22.4/12.6 |
| C67 | 4030017490 | S.CER C1608 JB 1A 105K-T | T | 20/17.2 |
| C68 | 4030017460 | S.CER ECJ0EB1E102K | T | 1.2/26.5 |
| C69 | 4030017460 | S.CER ECJ0EB1E102K | T | 1.6/38.1 |
| C70 | 4030017490 | S.CER C1608 JB 1A 105K-T | T | 20.9/37.9 |
| C71 | 4030017460 | S.CER ECJ0EB1E102K | T | 19.2/37.5 |
| C72 | 4030016930 | S.CER ECJ0EB1A104K | B | 24.7/19.3 |
| C73 | 4030016930 | S.CER ECJ0EB1A104K | T | 25.7/38.9 |
| C74 | 4030017620 | S.CER ECJ0EC1H100C | T | 23.3/32.1 |
| C75 | 4030016930 | S.CER ECJ0EB1A104K | T | 24.5/32.6 |
| C76 | 4030017460 | S.CER ECJ0EB1E102K | B | 4.9/18.8 |
| C77 | 4030017460 | S.CER ECJ0EB1E102K | T | 24.8/27.1 |
| C78 | 4030017460 | S.CER ECJ0EB1E102K | B | 9.4/21.8 |
| C79 | 4030017460 | S.CER ECJ0EB1E102K | T | 18.9/38.7 |
| C80 | 4030017460 | S.CER ECJ0EB1E102K | T | 9.3/21.3 |
| C81 | 4030017460 | S.CER ECJ0EB1E102K | T | 10.3/13.3 |
| C82 | 4550007070 | S.TAN TEESVP 1A 475M8R | T | 2.8/21.9 |
| C83 | 4030016790 | S.CER ECJ0EB1C103K | B | 17.4/39.7 |
| C84 | 4030016930 | S.CER ECJ0EB1A104K | T | 4.9/21.5 |
| C85 | 4030016930 | S.CER ECJ0EB1A104K | T | 2.5/23.3 |
| C86 | 4030017460 | S.CER ECJ0EB1E102K | B | 1.2/37.9 |
| C88 | 4030017730 | S.CER ECJ0EB1E471K | B | 1.4/23.1 |
| C89 | 4030017490 | S.CER C1608 JB 1A 105K-T | B | 2.9/21.9 |
| C90 | 4030017730 | S.CER ECJ0EB1E471K | B | 1.5/24.8 |
| C91 | 4030017730 | S.CER ECJ0EB1E471K | B | 4.8/4.9 |
| C92 | 4030016930 | S.CER ECJ0EB1A104K | T | 21.8/30.5 |
| C93 | 4030017640 | S.CER ECJ0EC1H150J | T | 23.3/27.5 |
| C94 | 4030016930 | S.CER ECJ0EB1A104K | T | 22.2/25.6 |
| J1 | 6510018440 | S.CNR AXN430C330P | T | 13.2/4.3 |

## [CHASSIS UNIT]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| J1 | 6910015860 | CNR IMSA-6277S-02A-G | | |
| J2 | 6910016780 | CNR ANT CONNECTOR-105 | | |
| SP1 | 2510001300 | SP 036D0801C <FG> | | |
| W1 | 8900013740 | CBL OPC-1429 | | |
| W2 | 8900010960 | CBL OPC-1129 | | |

## [VR BOARD]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| R1 | 7210003200 | VAR TP76N937N-16.5F-10KA-2803 | | |
| DS1 | 5040003170 | LED UW3804X | | |
| S1 | 2250000500 | ECR TP70TF5164S-20F-2803 | | |

## [FUSE BOARD]

| REF NO. | ORDER NO. | DESCRIPTION | M. | H/V LOCATION |
|---|---|---|---|---|
| L1 | 6200006190 | S.COL BLM21PG300SN1D | T | 7.5/6.5 |
| C1 | 4030017460 | S.CER ECJ0EB1E102K | T | 10.5/2.9 |
| J1 | 6910015880 | CNR IMSA-9230B-1-02Z141-T | | |

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)
S.=Surface mount

# SECTION 7 MECHANICAL PARTS AND DISASSEMBLY

## [MAIN UNIT]

| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| S3 | 2260002840 | Switch SKHLLFA010 | 1 |
| MP1 | 8410002530 | 2681 PA heatsink | 1 |
| MP2 | 8510016880 | 2803 VCO case | 1 |
| MP3 | 8510016870 | 2803 VCO cover | 1 |
| MP4 | 6910014760 | Plate OG-503040 | 1 |
| MP5 | 8510016900 | 2803 PA shield | 1 |
| MP6 | 8930066240 | Sponge (IM) | 1 |

## [CHASSIS PARTS]

| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| J1 | 6910015860 | Connector IMSA-6277S-02A-G | 1 |
| J2 | 6910016780 | ANT connector-105 | 1 |
| W1 | 8900013740 | Cable OPC-1429 | 1 |
| W2 | 8900010960 | Cable OPC-1129 | 1 |
| MP1 | 8210021540 | 2803 T-front panel assembly [F70DT/T] | 1 |
| | 8210021800 | 2803 S-front panel assembly [F70DS/S] | 1 |
| MP2 | 8210021490 | 2803 rear panel | 1 |
| MP8 | 8610012350 | Knob N327 assembly | 1 |
| MP10 | 8610012200 | Knob N321 (A) | 1 |
| MP17 | 8010019840 | 2803 chassis | 1 |
| MP20 | 8930064750 | 2803 main seal | 1 |
| MP22 | 8930064770 | 2803 release plate | 1 |
| MP25 | 8930059830 | 2600 sheet | 1 |
| MP26 | 8930065270 | 2803 mic seal | 1 |
| MP29 | 8930059800 | 2600 pet sheet | 1 |
| MP34 | 8930059360 | 2600 release button | 1 |
| MP35 | 8930056540 | Spring (AH) | 2 |
| MP39 | 8930063690 | O ring (BA) | 2 |
| MP41 | 8930055730 | 2403 connector seal | 1 |
| MP43 | 8830001470 | VR Nut (N) | 2 |
| MP44 | 8830002430 | 2803 ant nut | 1 |
| MP47 | 8810010480 | Screw PH B0 M2 × 6 SUS SSBC | 2 |
| MP49 | 8810010120 | Screw PH B0 M2 × 8 SUS ZK | 4 |
| MP50 | 8820001320 | 2795 screw | 2 |
| MP51 | 8810009510 | Screw PH BT M2 × 4 NI-ZU | 10 |
| MP52 | 8810008970 | Screw FH BT M2 × 3.5 NI-ZU | 2 |
| MP53 | 8810010430 | Screw truss M3 × 5 SUS SSBC | 1 |
| MP55 | 8930063060 | 2721 T-rubber | 1 |
| MP56 | 8850002590 | 2803 ant washer | 1 |
| MP57 | 8810009180 | Screw FH BT M2 × 5 NI-ZU | 5 |

## [FRONT UNIT]

| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| DS2 | 5030002830 | LCD M4-0078TAY-2 | 1 |
| MC201 | 7700002310 | Microphone EM-140 | 1 |
| MP1 | 8210021460 | 2803 reflector | 1 |
| MP2 | 8930061120 | Shield sponge (AA) | 2 |
| MP3 | 8930066040 | Sponge (IK) | 1 |
| MP4 | 8950004430 | Double coated tape (O) | 2 |
| MP5 | 8930062540 | Sponge (HO) | 2 |
| MP6 | 8930066250 | 2803 sponge | 1 |

## [DSP UNIT] (IC-F70DT/DS only)

| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| MP1 | 8930059940 | Sponge (HF) | 1 |

## [FUSE BOARD]

| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| J1 | 6910015880 | Connector IMSA-9230B-1-02Z141-T | 1 |

## [ANT BOARD]

| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| MP1 | 8930065180 | 2803 ant plate | 1 |

## [VR BOARD]

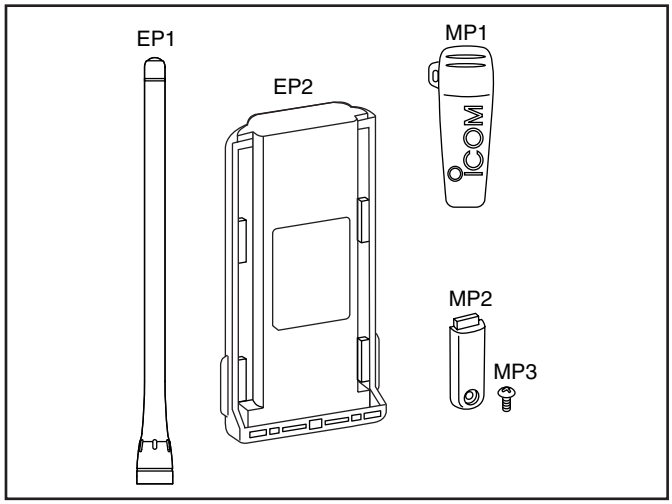
| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| R1 | 7210003200 | Variable resistor TP76N937N-16.5F-10KA-2803 | 1 |
| S1 | 2250000500 | Encoder TP70TF5164S-20F-2803 | 1 |
| DS1 | 5040003170 | LED UW3804X | 1 |
| EP1 | 0910059082 | Cable B 6224B | 1 |
| MP1 | 8930057690 | O ring (AQ) | 2 |

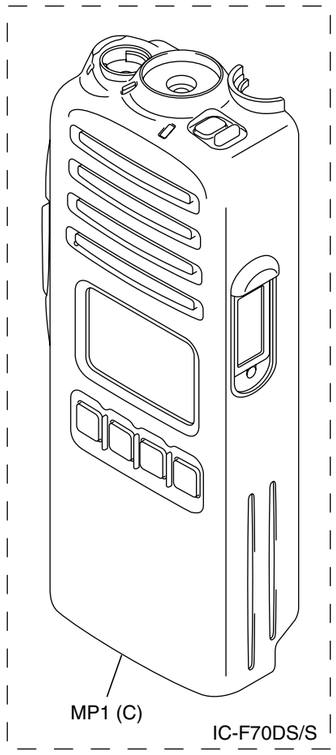
**Screw abbreviations**

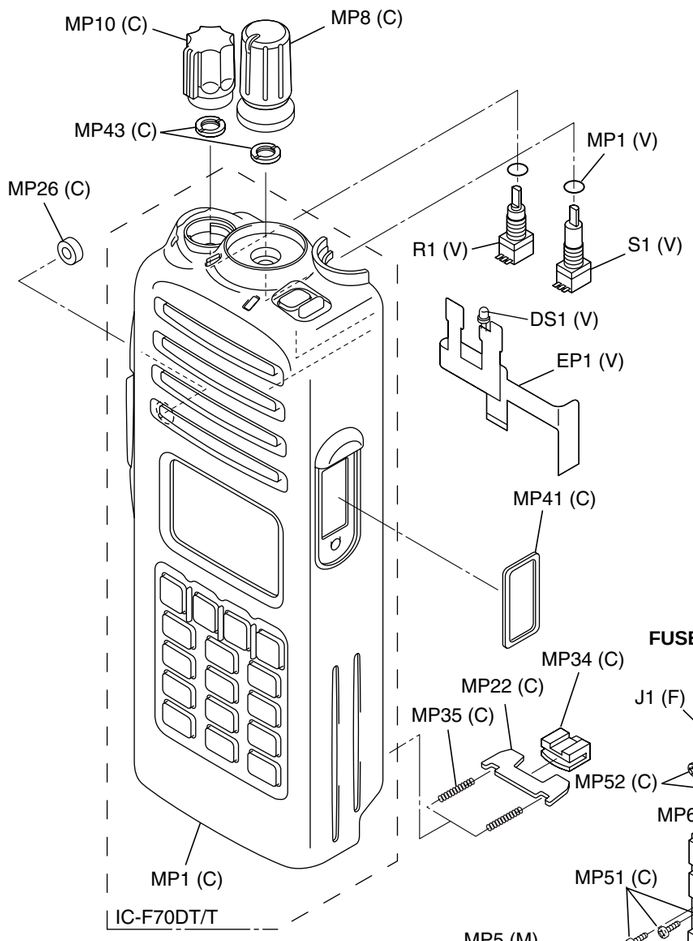
BT, B0: Self-tapping
PH: Pan head FH: Flat head
ZK: Black SUS: Stainless
NI-ZU: Nickel-Zinc

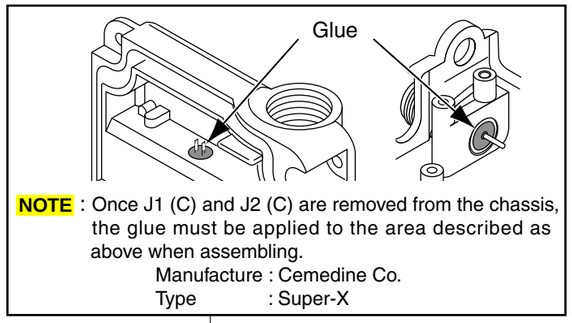
## [ACCESORIES]

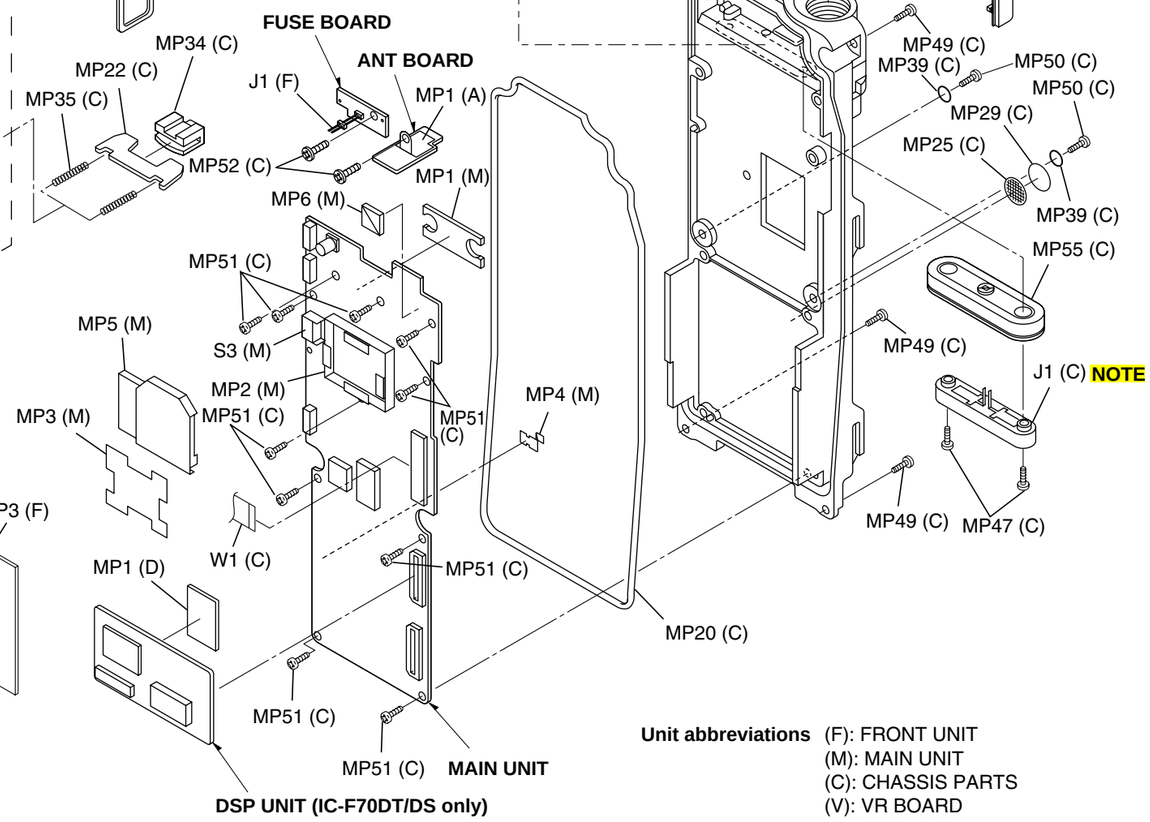
| REF. NO. | ORDER NO. | DESCRIPTION | QTY. |
|---|---|---|---|
| EP1 | Optional product | Antenna FA-SC55V-1 | 1 |
| EP2 | Optional product | Battery BP-235 | 1 |
| MP1 | Optional product | Belt clip MB-94 | 1 |
| MP2 | 8210021470 | 2803 side panel | 1 |
| MP3 | 8810010430 | Screw truss M3 × 5 SUS SSBC | 1 |





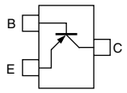
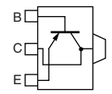
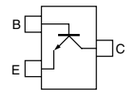
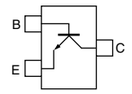
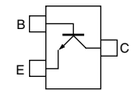
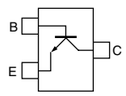
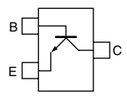
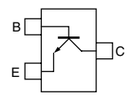
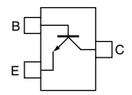
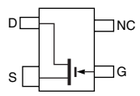
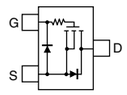
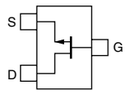
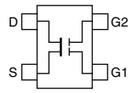
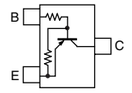
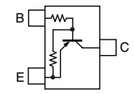
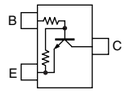
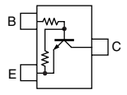
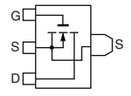
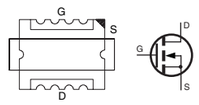
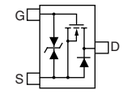
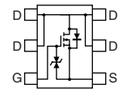
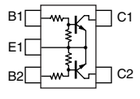
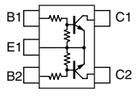
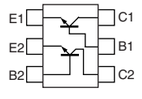


Glue
NOTE : Once J1 (C) and J2 (C) are removed from the chassis, the glue must be applied to the area described as above when assembling.
Manufacture : Cemedine Co.
Type : Super-X



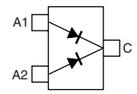
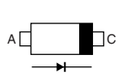
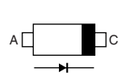
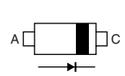
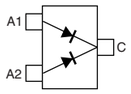
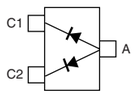
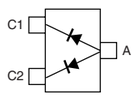
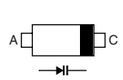
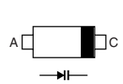
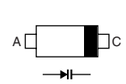
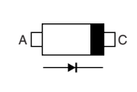
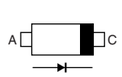
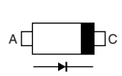
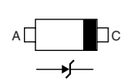
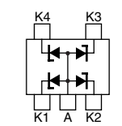
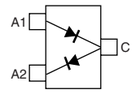

**Unit abbreviations**
(F): FRONT UNIT
(M): MAIN UNIT
(C): CHASSIS PARTS
(V): VR BOARD
(D): DSP UNIT
(A): ANT BOARD
(F): FUSE BOARD

# SECTION 8 SEMICONDUCTOR INFORMATION

## • TRANSISTORS AND FET'S

| | | | | |
|---|---|---|---|---|
| **2SA1577 T106 Q**<br>(Symbol: HQ)<br>  | **2SB1132 T100 Q**<br>(Symbol: BAQ)<br>  | **2SC4081 T106 R**<br>(Symbol: BR)<br>  | **2SC4116 BL**<br>(Symbol: LL)<br>  | **2SC4116 Y**<br>(Symbol: LY)<br>  |
| **2SC4215 Y**<br>(Symbol: QY)<br>  | **2SC4226 T1 R25**<br>(Symbol: R25)<br>  | **2SC5107 O**<br>(Symbol: MFO)<br>  | **2SC5110 O**<br>(Symbol: MGO)<br>  | **2SK1771**<br>(Symbol: UB)<br>  |
| **2SK1829**<br>(Symbol: K1)<br>  | **2SK880 Y**<br>(Symbol: XY)<br>  | **3SK293**<br>(Symbol: UF)<br>  | **DTA144 EE TL**<br>(Symbol: 16)<br>  | **DTB123 EK T146**<br>(Symbol: F12)<br>  |
| **DTC144 EE TL**<br>(Symbol: 26)<br>  | **DTC144EUA T106**<br>(Symbol: 26_)<br>  | **RD01MUS1**<br>(Symbol: K2)<br>  | **RD07MVS1**<br>(Symbol: RD07MVS1)<br>  | **RSR025N03**<br>(Symbol: QY)<br>  |
| **TPC6103**<br>(Symbol: S3C)<br>  | **UMG2N**<br>(Symbol: G2)<br>  | **XP1214**<br>(Symbol: 9H)<br>  | **XP6501 AB**<br>(Symbol: 5N)<br>  | |

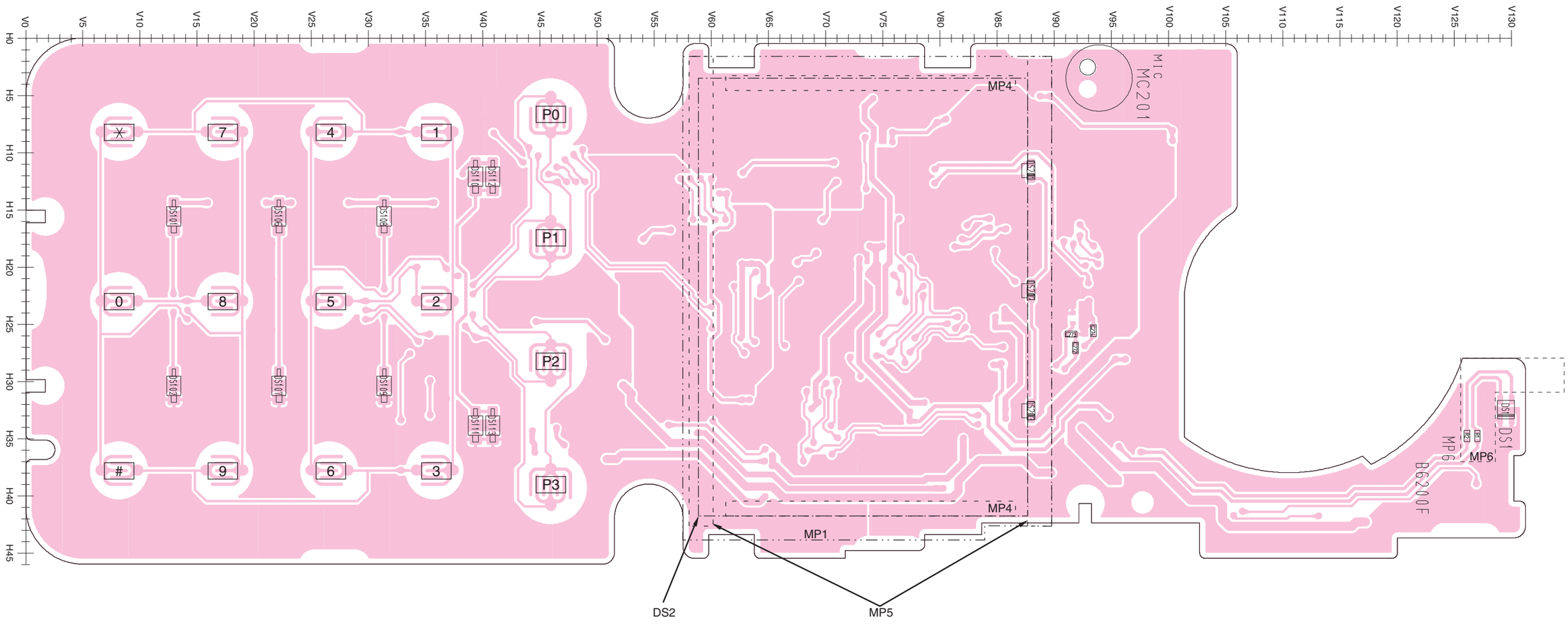
## • DIODES

| | | | | |
|---|---|---|---|---|
| **1SS301**<br>(Symbol: B3)<br>  | **1SV239**<br>(Symbol: TC)<br>  | **1SV284**<br>(Symbol: TL)<br>  | **1SV307**<br>(Symbol: TX)<br>  | **DAN235E TL**<br>(Symbol: M)<br>  |
| **DAP202 U T106**<br>(Symbol: P)<br>  | **DAP222 TL**<br>(Symbol: P)<br>  | **HVC350B**<br>(Symbol: B0)<br>  | **HVC375B**<br>(Symbol: B8)<br>  | **HVC376B**<br>(Symbol: B9)<br>  |
| **MA2S077**<br>(Symbol: S)<br>  | **MA2S111**<br>(Symbol: A)<br>  | **MA2S728**<br>(Symbol: B)<br>  | **MA8051 M**<br>(Symbol: 5-1)<br>  | **NNCD6.2G**<br>(Symbol: 62G)<br>  |
| **RB706F-40 T106**<br>(Symbol: 3J)<br>  | | | | |

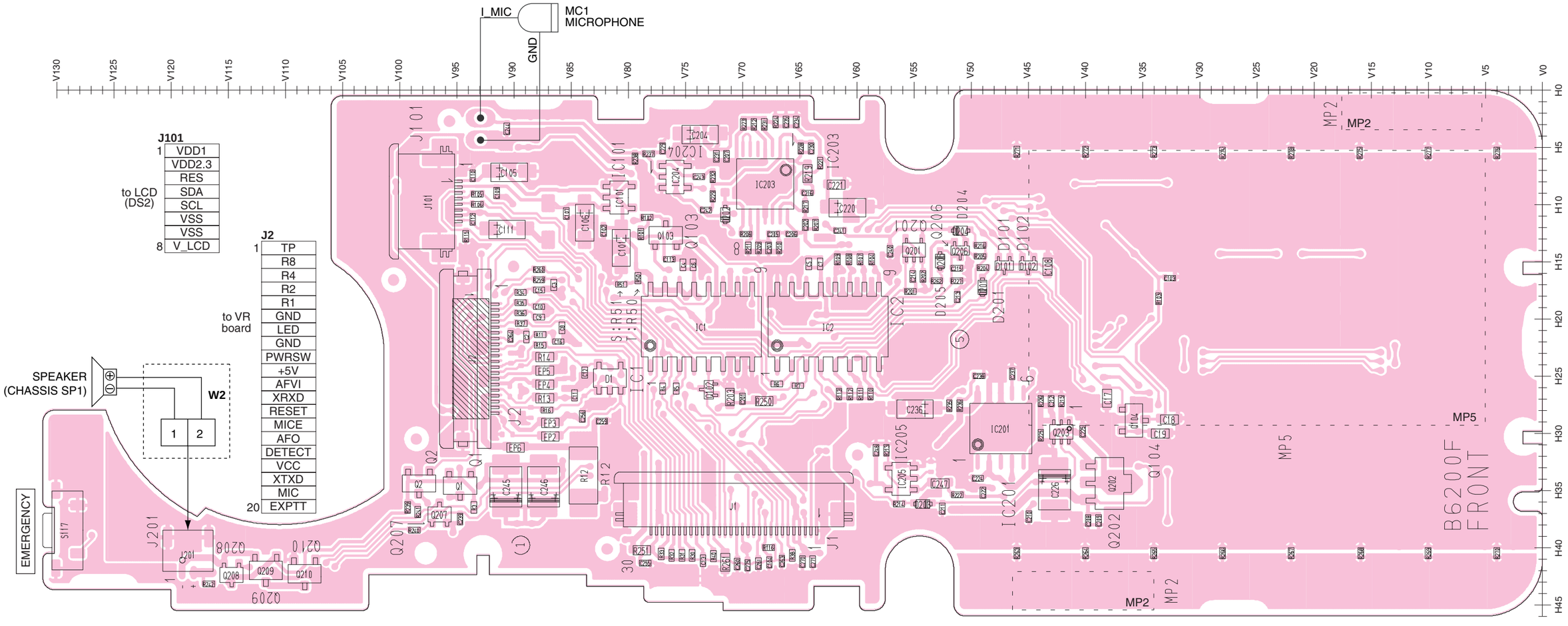
# SECTION 9 BOARD LAYOUTS

## 9-1 FRONT UNIT

• TOP VIEW



• **BOTTOM VIEW (FRONT UNIT)**



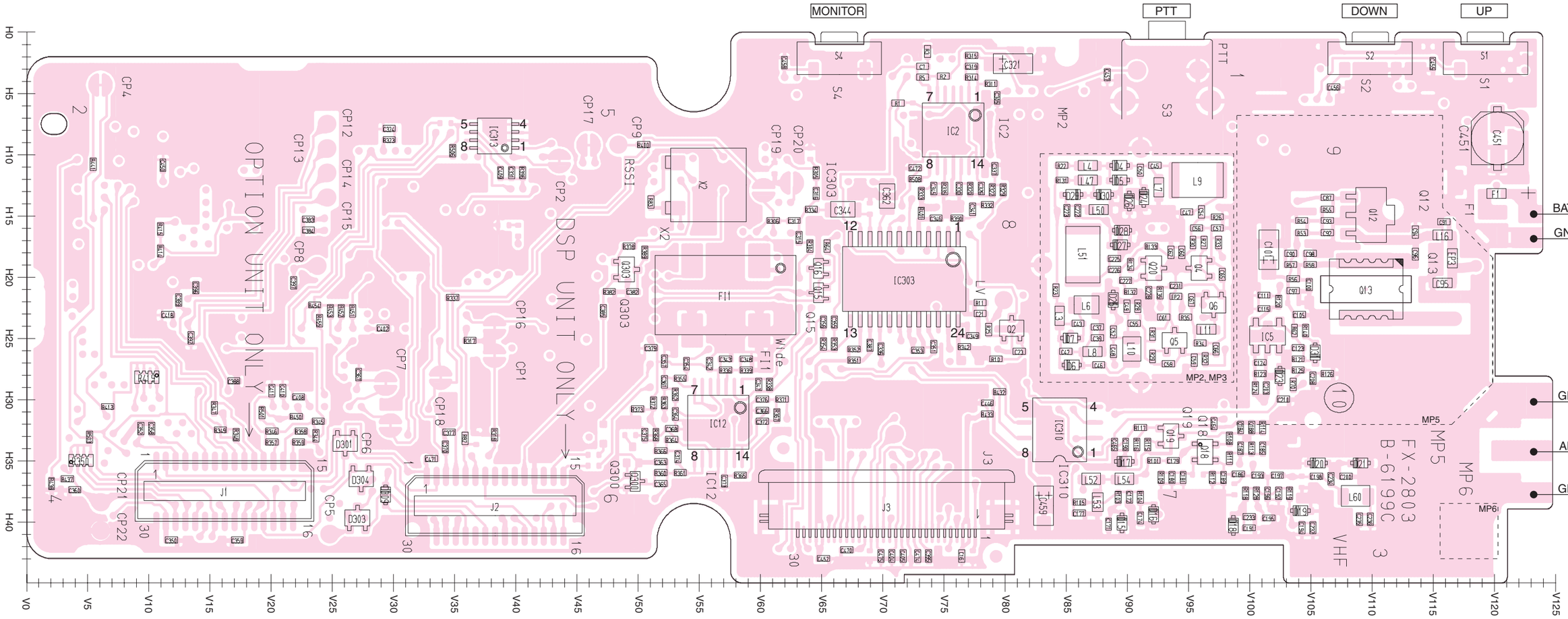

**J1** (30 … 1)

| EXPTT | +5V | +5V | R1 | R2 | R4 | R8 | RESB | XRXD | XTXD | RES | GND | FSCL | FSDA | AFON | SPCON | NC | PTTSW | PTTI | EM | KR | PWRSW | VOXOUT | AFVI | OPTV | VCC | VCC | SP+ | MIC | GND |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

to MAIN unit J3

## 9-2 MAIN UNIT

• TOP VIEW




**J1**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTTI | PTTO | MCOT | MCIN | NC | BUSY | NC | SIG | OPT1 | OPT2 | OPT3 | GND | OPV3 | OPV2 | OPV1 |
| GND | CPU5 | VCC | AMMT | AFONO | BEPO | ARMT | DISC2 | AFOUT | REM | CCS | IRQA | CSO | ACSI | CCK |
| 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 |

to Optional unit

**J2**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PTTI | DPTT | DMO | DMI | RSSID | BUSY | TEMP | NC | NC | DFIL | GND | NC | DTXD | DRXD | |
| GND | 5V | VCC | DMMT | DAFON | NC | DRMT | NC | DAFO | NC | CCS | IRQD | CSO | DCSI | CCK |
| 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 |

to DSP unit J1

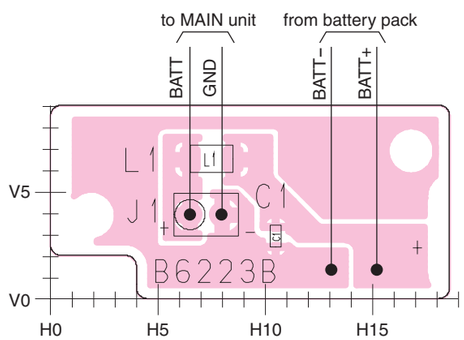
**J3**

| 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GND | MIC | SP+ | VCC | VCC | OPTV | AFVI | VOXOUT | PWRSW | KR | EM | PTTI | PTTSW | NC | SPCON | AFON | FSDA | FSCL | GND | RESET | XTXD | XRXD | RESB | R8 | R4 | R2 | R1 | +5V | +5V | EXPTT |

to FRONT unit J1

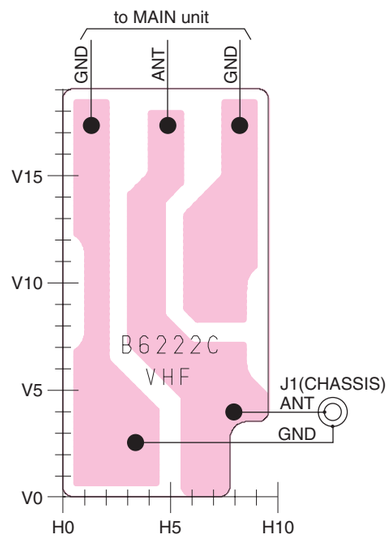
## 9-3 FUSE BOARD

• TOP VIEW

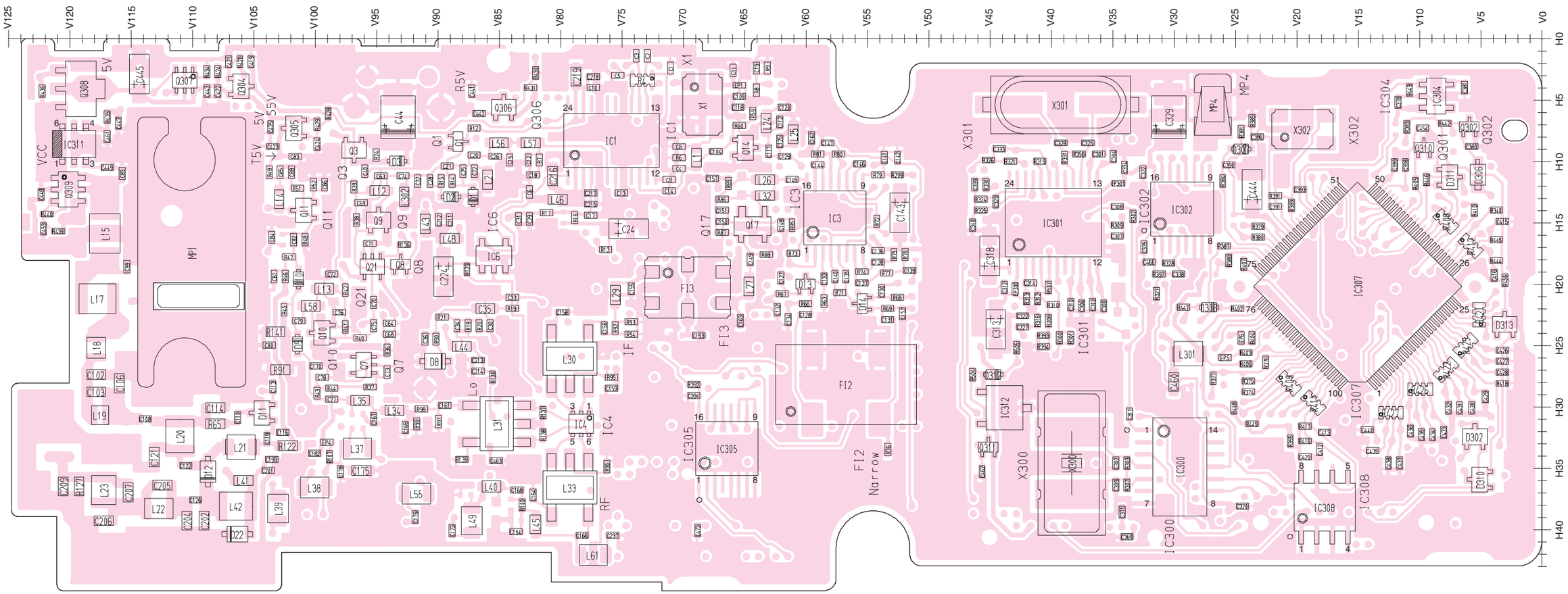



## 9-4 ANT BOARD

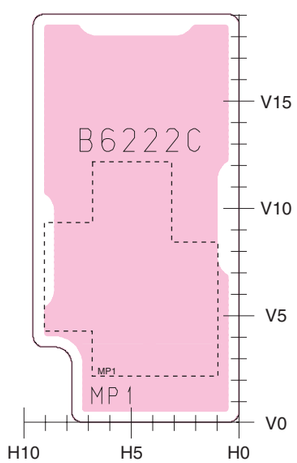
• TOP VIEW



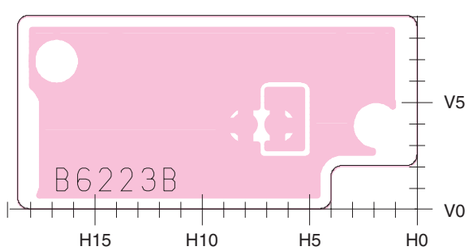
• **BOTTOM VIEW (MAIN UNIT)**




• **BOTTOM VIEW (ANT BOARD)**




• **BOTTOM VIEW (FUSE BOARD)**



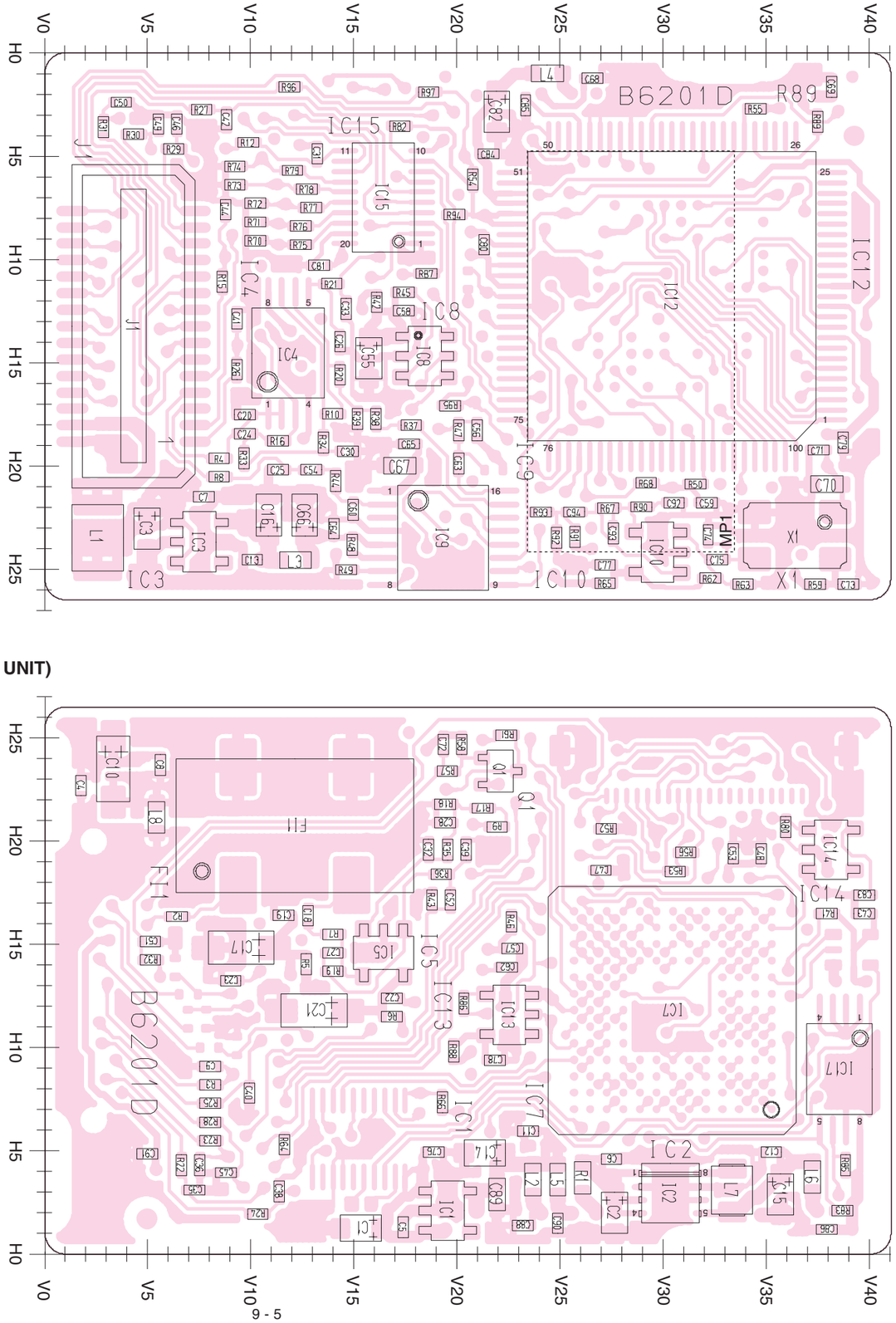
## 9-5 DSP UNIT (IC-F70DT/DS only)

**• TOP VIEW**

**J1**

| | | | |
|---|---|---|---|
| 16 | SCK | RXD | 15 |
| | SI | TXD | |
| | SO | RTS | |
| | CIRQ | AGND | |
| | CCS | DFIL | |
| | FLASH_RXD | MD2 | |
| | AFOUT | CPU_VDD | |
| | FLASH_TXD | CTS | |
| | RMUT | TEMP | |
| | 3.3V | BUSY | |
| | AFON | RSSI | |
| | MMUT | MIC | |
| | VCC | QOUT | |
| | +5V | PTTO | |
| 30 | GND | PTTI | 1 |

to MAIN unit J2

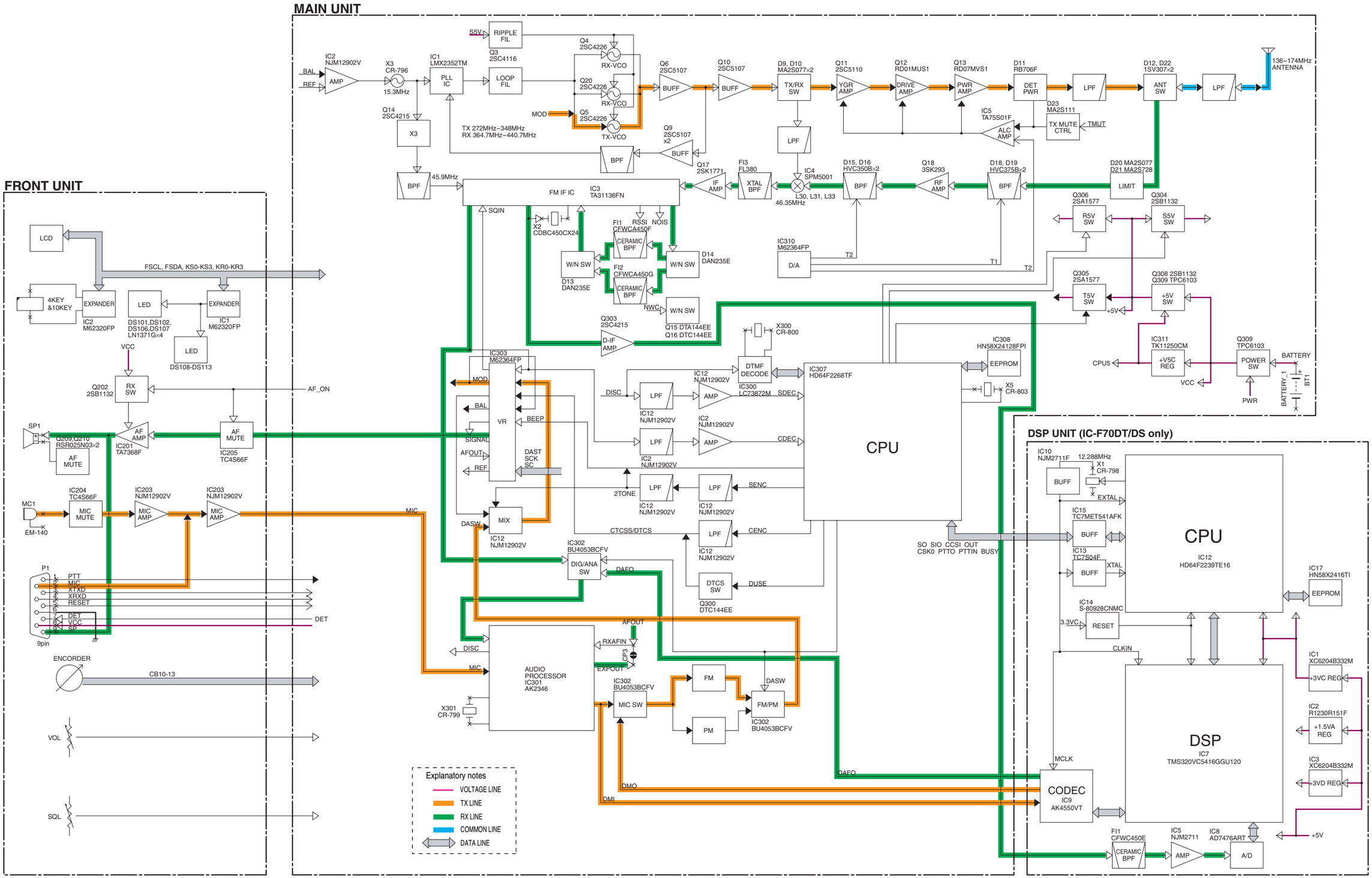



**• BOTTOM VIEW (DSP UNIT)**



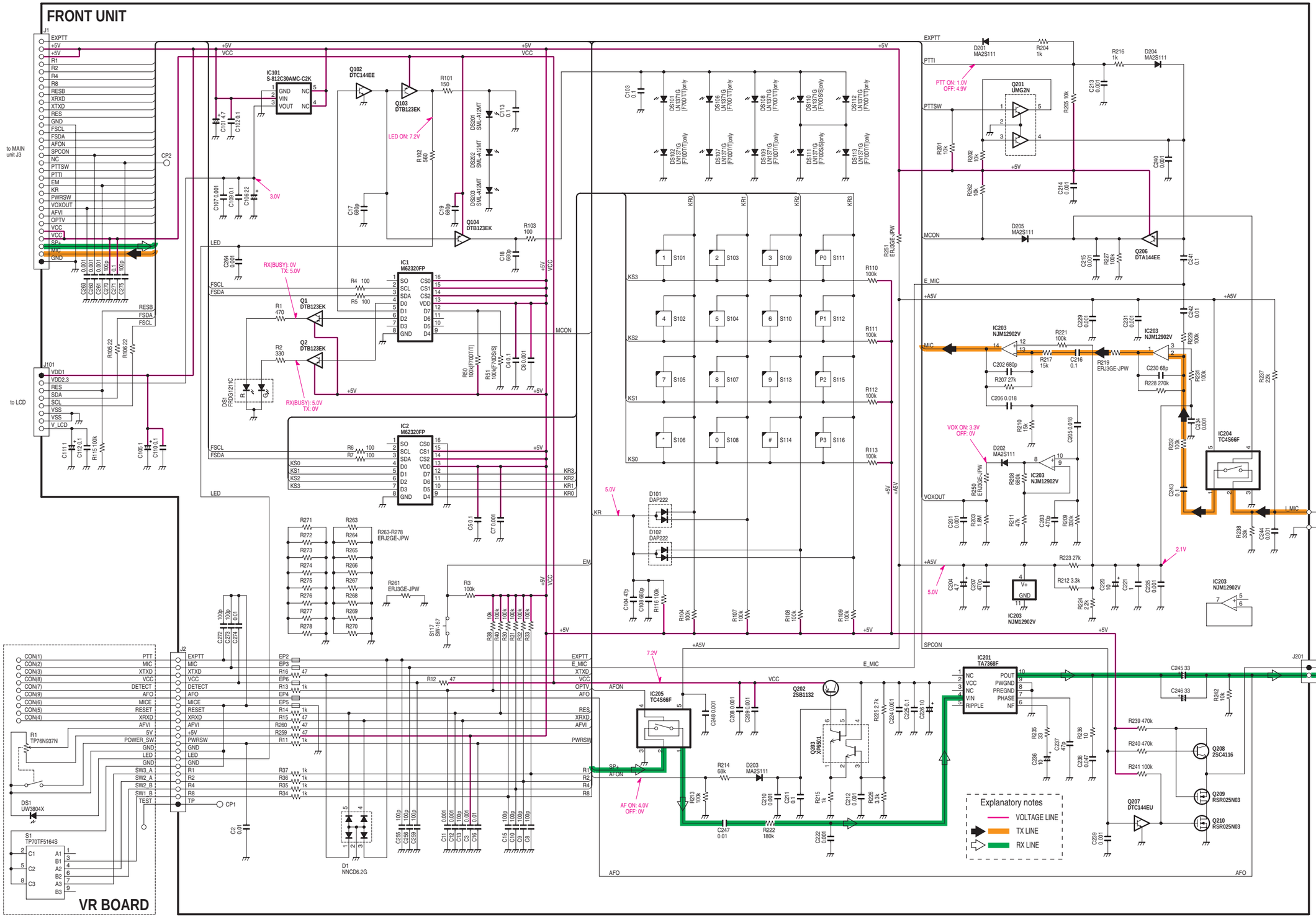

## 9-6 VR BOARD

# SECTION 10 BLOCK DIAGRAM

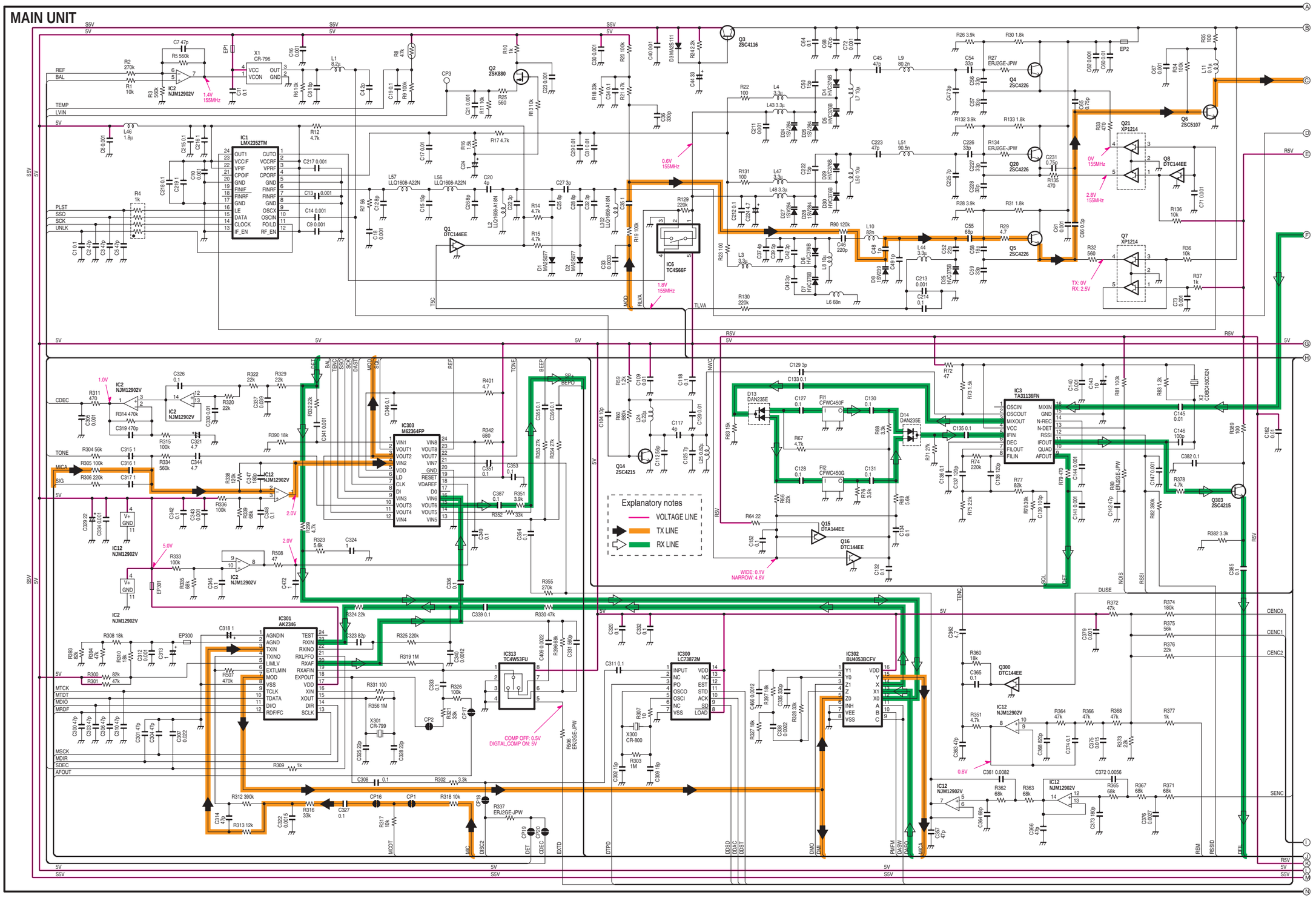


# SECTION 11 VOLTAGE DIAGRAMS

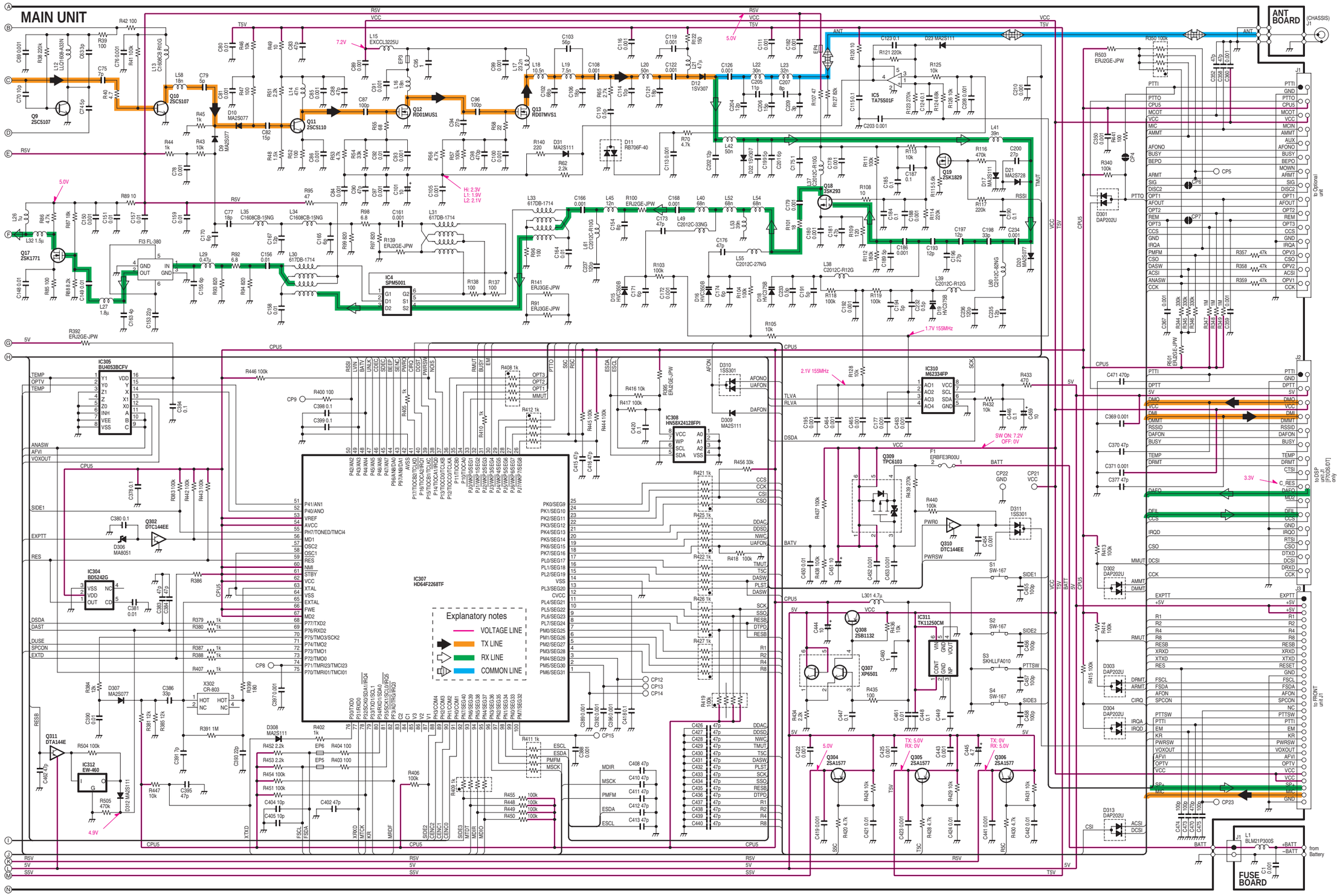
## 11-1 FRONT UNIT



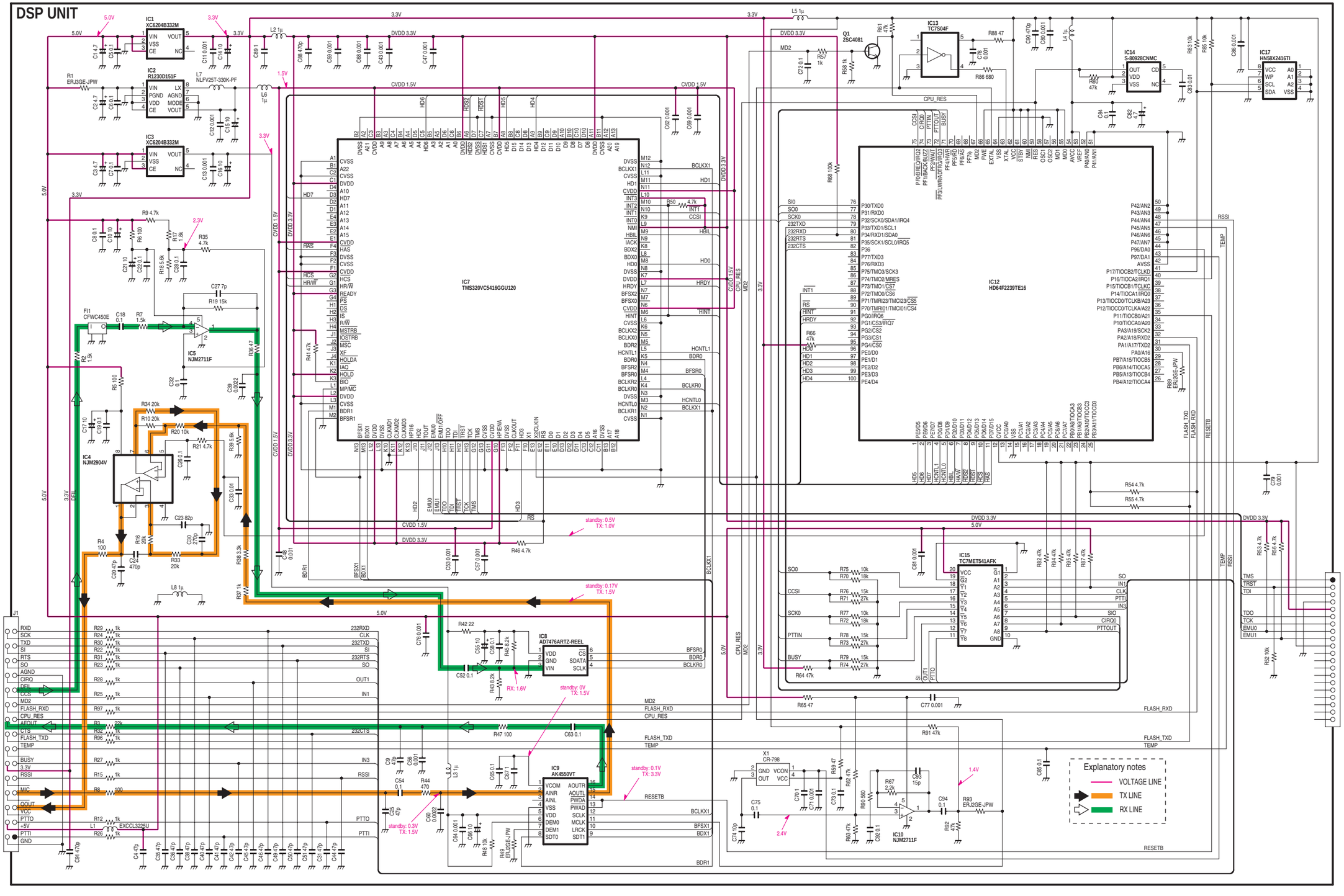
## 11-2 MAIN UNIT



# MAIN UNIT


ANT BOARD
(CHASSIS) J1
IC305 BU4053BCFV
IC307 HD64F2268TF
IC308 HN58X24128FPI
IC310 M62334FP
IC311 TK11250CM
IC4 SPM5001
IC5 TA75S01F
IC204 BD5242G
IC302 EW-460
IC303 CR-803
Q9 2SC5107
Q10 2SC5107
Q11 2SC5110
Q12 RD01MUS1
Q13 RD07MVS1
Q17 2SK1771
Q18 3SK293
Q19 2SK1829
Q301 DAP202U
Q302 DTC144EE
Q303 DAP202U
Q304 2SA1577
Q305 2SA1577
Q306 2SA1577
Q307 XP6501
Q308 2SB1132
Q309 TPC6103
Q310 DTC144EE
Q311 DTA144E
D301 DAP202U
D302 DAP202U
D303 DAP202U
D304 DAP202U
D313 DAP202U
D306 MA8051
D307 MA2S077
D308 MA2S111
D309 MA2S111
D310 1SS301
D311 1SS301
D312 MA2S111
D10 MA2S077
D11 RB706F-40
D12 1SV307
D15 HVC359B
D16 HVC359B
D18 HVC375B
D20 MA2S077
D21 MA2S728
D23 MA2S111
D301 DAP202U
D307 MA2S077
D309 MA2S111
D310 1SS301
D311 1SS301
D312 MA2S111
D17 MA2S111
D22 1SV307
Explanatory notes
VOLTAGE LINE
TX LINE
RX LINE
COMMON LINE
Hi: 2.3V
L1: 1.9V
L2: 2.1V
7.2V
5.0V
1.7V 155MHz
2.1V 155MHz
SW ON: 7.2V
OFF: 0V
TX: 5.0V
RX: 0V
TX: 0V
RX: 5.0V
4.9V
3.3V
R5V
VCC
T5V
5V
S5V
CPU5
BATT
ANT
TMUT
RSSI
PTTO
BATV
DSDA
DAST
DUSE
SPCON
EXTD
EXPTT
SIDE1
RES
RESB
TEMP
OPTV
ANASW
AFVI
VOXOUT
to DSP unit J1 [TS50D37] only
to FRONT unit J1
from Battery
FUSE BOARD

## 11-3 DSP UNIT (IC-F70DT/DS only)



# Icom Inc.

1-1-32, Kamiminami, Hirano-ku, Osaka 547-0003, Japan
Phone : +81 (06) 6793 5302
Fax : +81 (06) 6793 0013
URL : http://www.icom.co.jp/world/index.html

### Icom America Inc.
<Corporate Headquarters>
2380 116th Avenue N.E., Bellevue, WA 98004, U.S.A.
Phone : +1 (425) 454-8155 Fax : +1 (425) 454-1509
URL : http://www.icomamerica.com
E-mail : sales@icomamerica.com
<Customer Service>
Phone : +1 (425) 454-7619

### Icom Canada
Glenwood Centre #150-6165
Highway 17 Delta, B.C., V4K 5B8, Canada
Phone : +1 (604) 952-4266 Fax : +1 (604) 952-0090
URL : http://www.icomcanada.com
E-mail : info@icomcanada.com

### Icom (Australia) Pty. Ltd.
A.B.N. 88 006 092 575
290-294 Albert Street, Brunswick, Victoria, 3056, Australia
Phone : +61 (03) 9387-0666 Fax : +61 (03) 9387-0022
URL : http://www.icom.net.au
E-mail : sales@icom.net.au

### Icom New Zealand
146A Harris Road, East Tamaki,
Auckland, New Zealand
Phone : +64 (09) 274 4062 Fax : +64 (09) 274 4708
URL : http://www.icom.co.nz
E-mail : inquiries@icom.co.nz

### Beijing Icom Ltd.
1305, Wanshang Plaza, Shijingshan Road, Beijing China
Phone : +86 (010) 6866 6337 Fax : +86 (010) 6866 3553
URL : http://www.bjicom.com
E-mail : bjicom@bjicom.com

### Icom (Europe) GmbH
Communication Equipment
Himmelgeister Str. 100, D-40225 Düsseldorf, Germany
Phone : +49 (0211) 346047 Fax : +49 (0211) 333639
URL : http://www.icomeurope.com
E-mail : info@icomeurope.com

### Icom Spain S.L
Crta. de Gracia a Manresa Km. 14,750
08190 Sant Cugat del Valles Barcelona, SPAIN
Phone : +34 (93) 590 26 70 Fax : +34 (93) 589 04 46
URL : http://www.icomspain.com
E-mail : icom@icomspain.com

### Icom (UK) Ltd.
Unit 9, Sea St., Herne Bay, Kent, CT6 8LD, U.K.
Phone : +44 (01227) 741741 Fax : +44 (01227) 741742
URL : http://www.icomuk.co.uk
E-mail : info@icomuk.co.uk

### Icom France S.a
Zac de la Plaine, 1, Rue Brindejonc des Moulinais
BP 5804, 31505 Toulouse Cedex, France
Phone : +33 (5) 61 36 03 03 Fax : +33 (5) 61 36 03 00
URL : http://www.icom-france.com
E-mail : icom@icom-france.com

### Asia Icom Inc.
6F No.68, Sec. 1 Cheng-Teh Road, Taipei, Taiwan, R.O.C.
Phone : +886 (02) 2559 1899 Fax : +886 (02) 2559 1874
URL : http://www.asia-icom.com
E-mail : sales@asia-icom.com

### Icom Polska
Sopot, 3 Maja 54 Poland
Phone : +48 (58) 550 7135 Fax : +48 (58) 551 0484
E-mail : icompolska@icompolska.com.pl

**Count on us!**

Icom Inc.
1-1-32, Kamiminami, Hirano-ku, Osaka 547-0003, Japan

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